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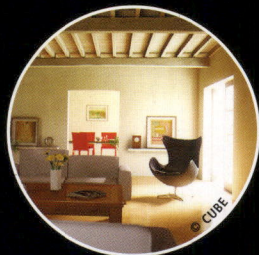
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COVER ARTIST

studio aka

TITLE: JOJO IN THE STARS
USING: SOFTIMAGEXSI, AFTER EFFECTS

Our cover image is a still from *JoJo in the Stars*, a hypnotic animated short directed by Marc Craste that tells the story of an ethereal silver-plated trapeze artist, her fixated devotee, and her arch enemy. Despite being made without commercial considerations in mind – “partly as a reaction to 15 years of making commercials”, Craste has said – *JoJo*’s no stranger to the limelight, having already garnered no less an accolade than a BAFTA in 2004, for Best Short Animation.

We confidently predict that studio aka, the company that created *JoJo*, will make a similar vault to centre stage during 2005, and you can discover which other studios from the world of commercials, TV and film we’ve singled out as the pacesetters for the coming year in our main feature, starting on page 30.

Back in 2003, we gazed into our crystal ball to make similar predictions, and with a fair degree of success too. Of course, if you disagree with us or think we’ve left someone out, let us know. After all, we could be missing out on the next *JoJo in the Stars*...
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030 RISING STARS

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>> Joe Harkins of Sony Pictures Imageworks demystifies the complexities of rigging a tentacled character

060 MODELLING A MOTORBIKE

>> Andy Kay grows long hair and a beard and models a motorbike using *trueSpace 4.3*, free on this issue's CD

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The future's tight, according to the President of Luxology

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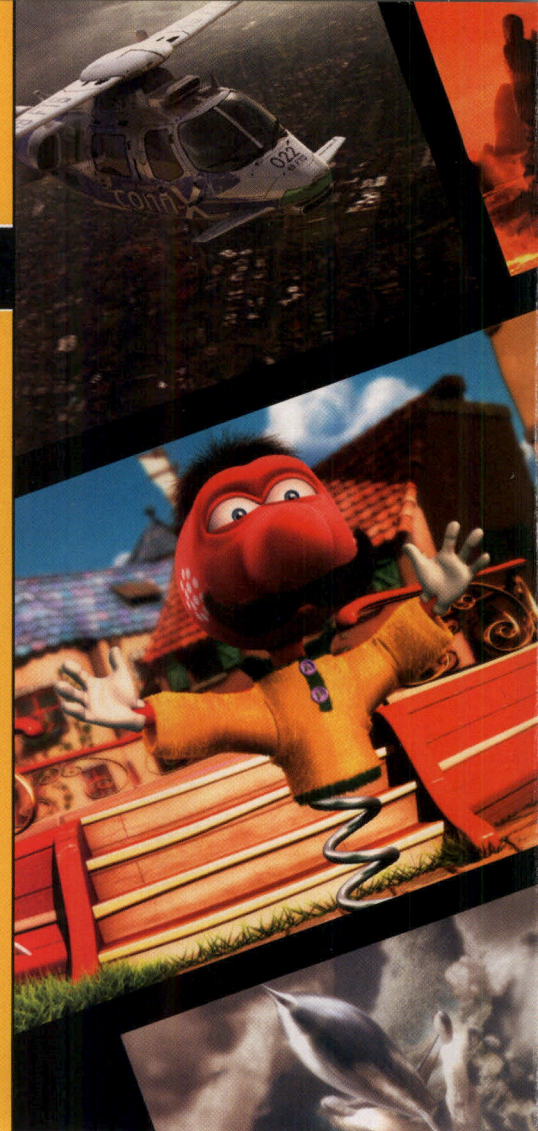
2004: A 3D Odyssey

>> Framestore CFC takes its protein pills and puts its helmet on for the BBC's 3D-heavy space adventure, *Space Odyssey: Voyage to the Planets*. Ed Ricketts dons a black spacesuit to touch the void



ON YOUR COVER CD

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#ISSUE 61

030

Rising stars

>> 3D World's in-depth round-up of the studios most likely to make a lasting impact on the world of VFX and animation in 2005 – with your host, Mark Ramshaw...

060

Modelling a motorbike

>> Get your motor running and rev up your 3D skills – we ride pillion with Andy Kay as he shows you how to use *trueSpace4.3* (free on this issue's cover CD) to model this motorbike

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>> Sony Pictures Imageworks' Joe Harkins explains the complexities of rigging a tentacled character for animation

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>> Install *trueSpace4.3* (free on this issue's cover CD), stick Motorhead on the CD, turn Motorhead off again, and model a powerful 3D motorbike in the comfort of your own home

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trueSpace4.3

The full version of Caligari's 3D content-creation app, originally sold for \$595, is now yours for free. See the CD inlay for online registration details, and follow our tutorial on page 60

>> www.caligari.com

PC & MAC



RealFlow 3 (demo)

This demo version of *RealFlow 3* is non time-limited – the only feature restriction is the lack of Command Line Versions to run multiple simulations simultaneously. Go with the flow...

>> www.nextlimit.com

JPEG



3D textures

25 high-res textures from Amazing Textures for use in any 3D project, and 11 fully tiling, high-res textures with Bump maps from ambientLight for use in non-commercial work

>> www.amazingtextures.com; www.ambientlight.co.uk

QUICKTIME



Pixel Corps video tutorials

3D industry veteran Alex Lindsay has provided six video tutorials describing the set-up and use of a professional production pipeline. Requires QuickTime; see the CD inlay for details

>> www.pixelcorps.com

Q&A AND TUTORIAL FILES

All full-sized screenshots and project files necessary to complete the tutorials and Q&As

>> www.3dworldmag.com

3D MODELS FROM WEB 3D SERVICE

A collection of five OBJ-format models for use in your projects, from Web 3D Service

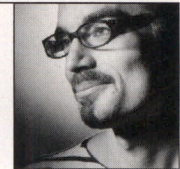
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PLUS

Full listings on the CD sleeve

Software not working as expected? Can't find those tutorial files? Check out the instructions inside our CD inlay for the solutions to the most common disc-related problems

editor's perspective



The place: Copenhagen, May 2004. The occasion: one of the first international showings of studio aka's BAFTA award-winning short, *JoJo in the Stars*. As the screen fills with light and the auditorium fills with the animation's soaring theme, I become aware of a second, smaller, stifled noise. The man in the neighbouring seat is fighting back tears.

The idea that certain things – be they projects, people or the work of particular studios – have an 'X factor', a connection to the heart that bypasses the intellect, has been in the air again recently. Over the past three months, we've whittled down an original set of 43 suggestions solicited from key players in the visual effects industry into our list of ten up-and-coming studios to watch in 2005.

In part, assembling a shortlist is an exercise in sorting data. Is company A working on more major film projects than company B? Has company C's promo work been more widely screened than that of company D? And does the fact that company E works in an expanding sector of the 3D industry outweigh either of these considerations?

The inclusion of Pixel Liberation Front in our final selection, for example, reflects both the increasing importance of the previsualisation process that the company helped to pioneer in modern filmmaking, and the influence that one of its recent projects, *Sky Captain and the World of Tomorrow*, has had on the US VFX community.

Of course, in addition to abstract facts and figures, choosing studios is about emotional responses. France's Action Synthèse made the shortlist not merely by producing a full-length animated film, *The Magic Roundabout*, outside of Hollywood, but because it seems to have done so in a way that stands a good chance of not trampling on its viewers' precious childhood memories. And then there's studio aka and *JoJo*, our cover star this month. Sadly, problems with film certification prevented us from including the movie on our CD, but you can order the DVD online at www.studioaka.co.uk and judge for yourselves whether you share the feelings of that Danish festival-goer.

JIM THACKER Editor
jim.thacker@futurenet.co.uk

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MAILBOX

BY POST: 3D World, 30 Monmouth Street, Bath, BA1 2BW, UK

letter of the month

Although I read issue 59's article on the experimental use of CG in moviemaking with great interest, I couldn't help but be disappointed by your concentration on Hollywood's attempts at innovation, and the omission of recent 'foreign' films like the fantastic *Immortel*.

For those that don't know, *Immortel* is a complex story about Egyptian gods turning up in futuristic New York, where people live with synthetic beings, monsters roam the streets and a strange girl with blue ice-like hair is the focus of attention. It's also the adaptation of an original story and series of comics by the film's director, Enki Bilal.

The film itself is a fantastic example of the increasing possibilities in all-digital production. Not only is it completely greenscreened (it possibly predates *Sky Captain and the World of Tomorrow* as the first such movie to enter production – although *Casshern*, an equally astounding-looking adaptation of a Manga title, could lay claim to that too), but it also pushes the boundaries for CG and human actor interaction. The character work is worth mentioning, as the effects artists took their lead from Bilal's almost caricature-like original illustrations, and brought them to life beautifully. Exaggerated oriental features, lumpy businessmen, robot police and of course the Egyptian gods all become believable creations that skim between real and imaginary. This technique not only creates something truly unique and eye-catching, but sidesteps any problem the viewer's brain might have in trying to accept a full-on attempt at a CG human (which is apparently where the *The Polar Express* is leaving many a viewer cold).

The film, as far as I know, is sadly stuck in the limbo that steals so many European movies away from us. But while it is clearly a French film in its stylings and production, it is in fact filmed entirely in the English language. So take the plunge and order the recently released two-disc special edition (www.amazon.fr delivered it safely to me here in the UK), and help spread the word. Even if you don't like the film, the Special Edition's 3D box art is particularly good!

Casshern (as far as I know) may still be getting a worldwide release thanks to the recent success of *Hero* and the soon to be released *House of Flying Daggers*, so sit tight and that one may well come to us too.

Bernard Barker | via email

PD We certainly didn't mean to suggest that the workflows explored in our Films of Tomorrow feature are the sole preserve of Hollywood – to your list, you could also add the German all-CG feature *Back to Gaya* as an example of an animation that makes extensive use of motion capture. However, at the time of writing, neither *Immortel* nor

Casshern has either a UK or US cinema release confirmed, and *Back to Gaya* received only a low-key release in the UK. Since most 3D World readers live in English-speaking countries, we chose to illustrate the article with the movies with which we thought people would be most familiar.

Enki Bilal's entirely greenscreened *Immortel* is one of many innovative CG productions that escape the attention of Hollywood-centric filmgoers, points out reader Bernard Barker

CODEC CONFUSION

>>> I'm wondering if you can help ease the pain of playing many of the sample animation and movie files distributed with *3D World*. I've had problems for years – it all started with some idiot who decided that DivX was going to rule the video world. When is a .avi not a .avi? When it's a DivX .avi. What makes me associate a .mov file with QuickTime? Hell, I don't know, but I do know many of the .mov files distributed with *3D World* won't play on any software I've installed, and I'm constantly missing the required codecs. I don't know where or what to get: should I run over to the QuickTime site and download the latest? I don't have a good understanding of how these different codecs are created, or who supplies them. Can you shed any light on the subject or possibly include updated codecs on the cover CD itself?

Roger | via email

PD Matt Gallimore, 3D World's long-serving CD editor replies: "First of all, an apology. The *Alias* showreel on the CD for issue 59, which originally prompted Roger's email, was actually encoded with the 3ivx codec (downloadable for free from www.3ivx.com). This file was an internal test version, and should not have escaped into the wild. As to your main questions, we moved to the DivX codec since it enabled to fit more video content onto the CD than the Sorenson codec we were previously using. However, MPEG-4 compressed .movs now offer even better results than DivX, so from this issue forward, any video material on the CD will be in this format. To play the files, you should only need the latest version of QuickTime (at time of writing, version 6.5)

installed on your machine. Unfortunately, due to Apple's licensing restrictions, we're unable to include QuickTime Player on our CD each issue, but you can download it freely from the Apple site: www.apple.com/quicktime/download."

ARE YOU A GEMINI? I'M A TORUS...

>>> When the third dimension collides with the fourth dimension, and it all gets a little too much, what happens to the world around you? Well, I'll tell you what happens:

You fail to detach from the 3D world, and suddenly find yourself describing your wife as two spheres and a cylinder – or two cones and a double torus in my case. You unconsciously reach for the [Ctrl] and [Z] keys when handwritten typos occur. (Come on now, you've all done it once...) You find yourself the subject of verbal abuse while sitting at a green light deconstructing pretty buildings into their constituent primitive forms. And you finally find yourself drinking alone when female friends fail to understand the beauty of fine edge loops... I must cheer up.

Dave Edwards | via email

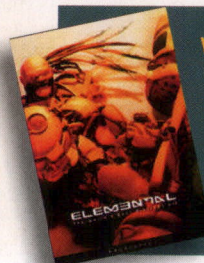
PD Dave, you're scaring us. And we suspect that you should probably hide this copy of 3D World from your wife.

CORPORATE BLISS

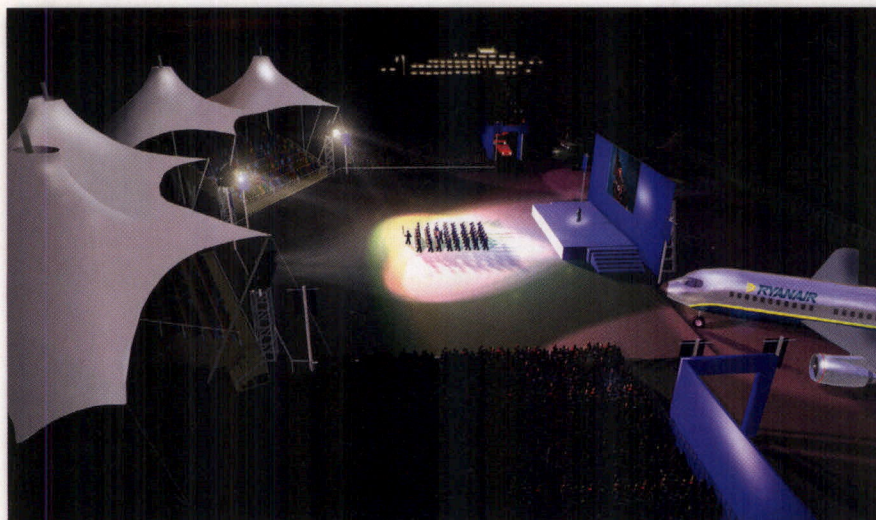
>>> I was disappointed to read about Dominic Plumb's condemnation of 3D in the corporate sector [Mailbox, issue 59]. Some people enjoy the buzz of working in a large, fashionable studio, but others like me work on our own, doing those mundane jobs that Dominic

WRITE IN AND WIN A PRIZE!

Each issue, we award a prize to the sender of our Letter of the Month. Next issue, it's a copy of *Elemental*, Ballistic Publishing's coffee-table compendium of digital art created using Discreet software products. Featuring over 250 stunning images produced with 3ds max, character studio or combustion – the work of 147 artists from 36 different countries – *Elemental* is an inspiration resource for any 3D artist. To order a copy of the book, visit www4.discreet.com/buy



GO ONLINE: <http://forum.3dworldmag.com>



My work is fulfilling and interesting. Every job is different, unlike in a studio where I would be working on a single job for months doing a single task. I work with managing directors

>> I enjoyed your recent beginners' character animation tutorial series by Chris Ollis – any chance of an 'intermediate' series, perhaps covering animation in more detail?

Vicki Haynes | via email

Short-form animation was the order of the month on the 3D World forum, with threads on both where to buy DVDs of the best examples (General Discussion > animations, shorts... where?) and why certain shorts get created in certain packages (LightWave > Why use LightWave for one-man animations? – users of other apps might like to observe that the location of the thread made defending the premise “a bit like shooting fish in a barrel”, as SC drily noted.) Over in Cinema 4D, Dr. Monkeyface provided some advice on extending Adam Watkins’s lava lamp Q&A from issue 59, while if you’ve ever wondered what what would happen if Rockstar decided to release a version of *Grand Theft Auto* for the over-80s, the dreadful truth can be discovered in For Critique > Wrinkly Races.

Don't know what we're talking about? Head over to the site at <http://forum.3dworldmag.com> and find out for yourself!



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QUOTES OF THE MONTH »

"The crucial thing when going for a job [at a game developer] is to find out how long the staff stay there."

Andrew Oliver
BLITZ GAMES

p10

"Our artists have two computers: one they work on all the time, and one they kick a lot – the one running the render tools."

Paul Wedgwood
SPLASH DAMAGE

p11

"It'd be like *Baywatch Nights* but set in a future where the world is ruled by metal mice and everyone lives underground..."

Fizzy Eye
PROJECT FOCUS

p11

"What the hell is going on? If everything's so much cheaper nowadays, then why does a fully CG feature still cost around \$100 million to make? Is this going to be the new inviolable rule?"

Craig Zerouni
LETTER FROM HOLLYWOOD

p12



SAND 2004 REPORT

It began with the announcement of a £7 million fund for creative businesses and it ended in "sailors, chocolate and throwing old ladies off mountains". Welcome to the Swansea Animation Days show, 2004

SHOW REPORT

Organised by the Swansea Institute, SAND remains student-focused. Yet over the past five years, Swansea Animation Days has grown from a one-day show into a five-day conference attended by over 600 visitors. This year, a new short film festival and a day dedicated to the funding of new creative start-ups in the region were added to the lineup.

MONEY AND MEDICINE

The first major announcement of the festival was a new £7 million fund for

the few such specialist events in the world. Although less well attended than the games or film programmes that followed it, the speaker line-up included representatives of UK-based companies Primal Pictures, Virtualis and Image Metrics, and international speakers from Rutgers University and Life House Productions. The increasing use of 3D in medical illustration was highlighted by one of the talking points among speakers at the show: the release of one of the first specialist reference books on the subject, *The Digital Biomedical Illustration Handbook*, by regular *3D World* contributor Mike de la Flor.

More graphically intensive games will also mean increased workloads for games artists, a point noted by the festival audience, which quizzed Jeffery on recent reports that EA is to face a class-action lawsuit over its alleged failure to pay overtime wages to its employees.

Jeffery refused to comment on the case in detail, but claimed that working conditions at EA should be seen in the context of the industry as a whole. "Film people come into games not to have to work seven days a week," he said. "Long hours are true at times, particularly on deadline. I'm not going to claim that everything is rosy, but we aim to let employees strike a good work/life balance."

The point was picked up by other speakers, including Blitz Games' CTO Andrew Oliver. "The industry is settling out," he said. "My brother [Blitz co-founder Philip Oliver] and I worked 18 hours a day for three or four years, and we made a shedload of money. But you can't expect everyone else to do that. The crucial thing when going for a job [at a game developer] is to find out how long the staff stay there."

Whereas EA cited its in-house resources, including an on-site masseuse at its Chertsey facility, and the company's status as a market leader as alternative reasons to apply, life is clearly different at the other end of the market. According to Paul Wedgwood of indie developer Splash Damage, responsible for the multi-award-winning *Quake III Fortress*: "Indies adopt

"This is the state that European cinema is in. Either you go and work for DreamWorks or you end up making films for four people"

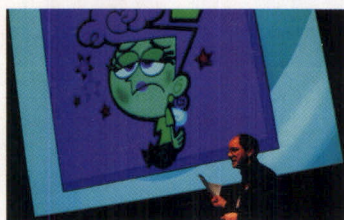
Lenard Krawinkel, DIRECTOR, BACK TO GAYA

creative intellectual property. The scheme, unveiled by the UK's Minister for Economic Development and Transport, Andrew Davies, is intended to provide gap funding for any business looking to invest in creative projects based in Wales. In return for this investment, the Creative IP Fund will take a share of the intellectual property generated by these projects, which may include films or TV series. The sessions were followed by an entire day devoted to the use of CG in medical illustration and animation, one of

ALL JUST A GAME?

In contrast, the third day of the show was given over to a far more mainstream use of 3D graphics: videogames. One of the recurring themes was the potential that next-generation consoles such as PlayStation 3 and Xbox 2 have to transform the gaming experience, an ambition summarised by Matthew Jeffery, Head of Recruitment at Electronic Arts' European Studios, as "recreating *The Incredibles* as a real-time interactive experience".

#011



new technologies earlier, and generally pay better." Wedgwood also cited the modding community, from which the original members of Splash Damage were drawn, as a back door into the industry for artists with no formal games experience. Whereas staff at large studios typically have very specialist roles, Wedgwood commented that for Splash Damage, an ability to work closely with programmers was equally as important, given the sometimes unpredictable nature of the render pipeline.

"Our artists have two computers," he said. "One they work on all the time, and one that they kick a lot. The one they kick a lot is running the render tools."

POLAR OPPOSITES

New production pipelines were also discussed at SAND, thanks to acting guru Ed Hooks' barnstorming presentation on the use of motion-capture technology in Sony's recent hit *The Polar Express*.

"The problem with *Polar Express* is in the eyes," he said. "No one has yet figured out how to put [mo-cap markers] on actors' eyeballs. It gives the characters a very spooky look. I swear that the young boy in the story often looks like he's mentally... not right. In my opinion [animation driven purely by mo-cap] just can't work."

A contrasting view was provided by Lenard Krawinkel, director of Germany's first full-length CG animated feature, *Back to Gaya*, which uses motion capture aplenty. "One day we may see mo-cap humans where the eyes are alright. I wouldn't say no to [the technology]. I'd say, 'Let's see where we can take it.'" However, the main theme of Krawinkel's presentation was the incredible difficulty of trying to get a CG feature made outside Hollywood. In part privately funded by the director and his business partner, the four-year development process of *Back to Gaya* became an increasingly quixotic affair, spanning battles with technology, the unfortunate policy of not recording the



SAND 2004's conferences featured many of the industry's leading lights

voice actors before the animation, the need to redesign the lead characters due to similarities with the then recently released *Shrek*, distribution nightmares, the death of the soundtrack composer halfway through production, and culminating in Warner Bros' decision to release the film in Germany on the same day as Disney's *Brother Bear*.

These problems were starkly highlighted when Krawinkel asked the 200-strong festival audience how many people had actually seen the film. Only four had done so. "This is European cinema," he said. "Either you go and work for DreamWorks, or you end up making films for four people."

PRIDE OF WALES

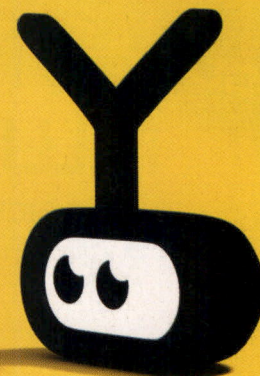
Other highlights of SAND 2004 included the best of the new work produced by young Welsh animators, a sneak preview of DreamWorks' upcoming *Madagascar*, courtesy of the studio's European representative, Shelley Page, and a lot of drunken mayhem too unpleasant to commit to the printed page.

For those of you wondering about the line about "sailors, chocolate and throwing old ladies off mountains" that opened this piece, the quote was from Jonathan Clements of Muramasa Industries' synopsis of the roots of the Japanese anime industry. The details are too complex to summarise here, so we can only urge you to buy his book, *The Anime Encyclopedia: A Guide to Japanese Animation Since 1917*, which is available from Amazon.

More information, including a description of how Clements posed as a Japanese schoolgirl to sell his first book, used to sing pop songs in Mandarin on the Sci-Fi Channel, and became the "only man in history to have been exiled from Outer Mongolia", is available from his website.

For more of the same, 3D World hopes to see you at SAND 2005.

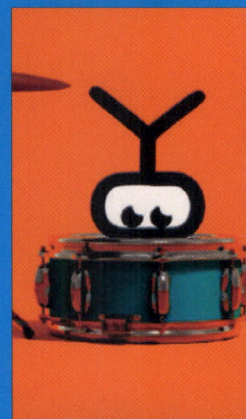
www.sand.org.uk



» PROJECT FOCUS

EYETOY IDENTS

How do you turn a piece of hardware into an animated brand? Nexus shows us, in style



DETAILS

TITLE
<i>EyeToy</i>
PRODUCTION COMPANY
Nexus Productions
DIRECTOR
Fizzy Eye
RUNTIME
Two minutes
TEAM SIZE
One Lead Animator
TIME TAKEN
Around four months
SOFTWARE USED
3ds max

Sony Computer Entertainment Europe's latest set of short animated idents to use on forthcoming EyeToy games are the brainchild of Fizzy Eye, a directorial entity working for Nexus Productions, the company that famously produced recent ads for Honda and BMW, among others.

Fizzy Eye didn't have much to go on: just the 2D EyeToy logo, lovingly referring to as YO Man.

"The idents were created to define YO Man as a character. The logo was obviously a big part of it, as well as what Sony wanted to communicate," said Fizzy Eye. "They had quite a strong sense of who YO Man was and what he was all about, and we talked with them quite a lot initially about what was or wasn't right for him."

Fizzy Eye eventually developed a series of short, simple slapstick routines in which YO Man gets involved with all kinds of inanimate objects. One Lead Animator, Darren Price, was used throughout to ensure that the design and animation remained distinctive. "We had control at the script-writing stage and were involved in sound design as well, so we were in there from start to finish. We wanted to see how far we could push the character without it getting too 'toony'. We deliberately tried to keep the stories simple so we weren't trying to cram too much into 20 or 30 seconds."

Although YO Man is essentially 'just' a brand, Fizzy Eye revealed that they would love to work with him again. "If we got the opportunity, we'd like to develop it a bit further and get into the dark side of his character. We were thinking about something along the lines of *Baywatch Nights* but set in a future where the world is ruled by metal mice and everyone lives underground..."

www.nexusproductions.com

MILLION DOLLAR BASH

If 3D hardware and software costs have lowered so much, why do all-CG films still cost the earth to make?

A long time ago, it cost a lot of money to set up a facility, whether CG or video post-production. But as more and more functions began to be taken over by general purpose computers, and as the price of the software dropped a little (and the price of the hardware dropped a lot), we had a lot of conversations that went: "Soon everyone will be able to afford to create a full-blown edit suite/CG facility/space shuttle in their bedroom. Then we'll really see a creative explosion." And that has sort of happened – you can do amazing things with relatively little money, which is great.

And yet there was a time when it cost about \$1 million to set up a video edit suite. I'm talking tape machines with open tape spools that you had to lace up onto the machine yourself. You had a couple of those, some switchers and patch panels and audio equipment and a lot of gin and tonic and whoops! There went a million bucks. Then we got digital VTRs and disc-based editing and Harry and

Henry and offline editing on PCs (kind of), but somehow, if you wanted to set up a professional suite, it was still a million dollars.

Then it was all going to be done on SGIs or Macs or something, but people bought *flames* and *infernos* and when you added up the bill for a new facility it was still a million goddamn dollars!

And what of CGI? Well, here we are, finally able to run real 3D software on a laptop, which is something I've wanted to do for 15 years. It's fantastic. So surely everyone will soon be in their bedroom, changing the world, right?

Er, not quite. I say that because *The Incredibles* cost \$140 million to make, and *The Polar Express*, I read with some incredulity, cost \$170 million to make. Further, I'm currently involved with a 'low-budget' CG feature, which is budgeted for roughly \$60 million.

So what the hell is going on? If everything's so much cheaper, then why does a fully CG feature still cost around \$100 million to make? And is this going to be the new inviolable rule? Will all CG features still cost many millions of dollars, no matter what the technology advances to?

I think the answer is yes, at least for the medium term. But why? Well, firstly, because the gap between a few nice images and a 90-minute feature that holds your attention is huge. You're talking about a multi-year project involving roughly 150 highly skilled people and that's always going to cost money. Secondly, the work has to really shine, and the backers of these films are willing to spend what it takes to make that happen. Why? Because the rewards are just so huge. Take *The Incredibles*, which clocked up \$140 million in costs. That's a hell of a lot of money, but it made back half of that in its first weekend. When you include licensing rights and merchandise and whatnot, this film will almost certainly bring in close to a billion dollars over the next several years. If you're trying to shoot the moon like that, you shovel in as much coal as you can find. So yes, I suppose that eventually it will certainly be possible for a couple of people to do a short feature in a reasonable time for not much money. But we're not there just yet...

CRAIG ZEROUNI
zerouni@earthlink.net

Craig Zerouni co-founded CFX Associates in London in 1982, and has been in the industry ever since

MOTIONBUILDER 6

» **PRODUCTS** Alias's debut release of MotionBuilder emphasises ease of use

The latest version of *MotionBuilder Pro* is now available to Alias customers on maintenance. Version 6 of the character animation system continues the emphasis on real-time technology while making significant changes.

The environment and UI have been made more intuitive, with a redesigned properties viewer and the ability to emulate hotkeys of other major packages. Meanwhile, simplified camera controls make it easier to navigate, and an enhanced viewer with new navigation hot buttons assists animation.

There's also a redesigned transform manipulator and Handles, a tool for selecting and manipulating objects. Alias also announced that games developer Ubisoft is using *MotionBuilder* for its next-generation console titles. "We selected *MotionBuilder Pro 6* because its keyframe animation tools are simple to use, yet still provide our artists with an unprecedented level of control when developing highly realistic character animation," said Nicolas Rioux, VP of technology.

The *Standard* version is £645, with *Pro* at £2,725. www.alias.com



IMAGE: © Disney / Pixar

Toy Story 3

Disney goes it alone without Pixar. Will it be Battleships or a Mrs Potato Head?

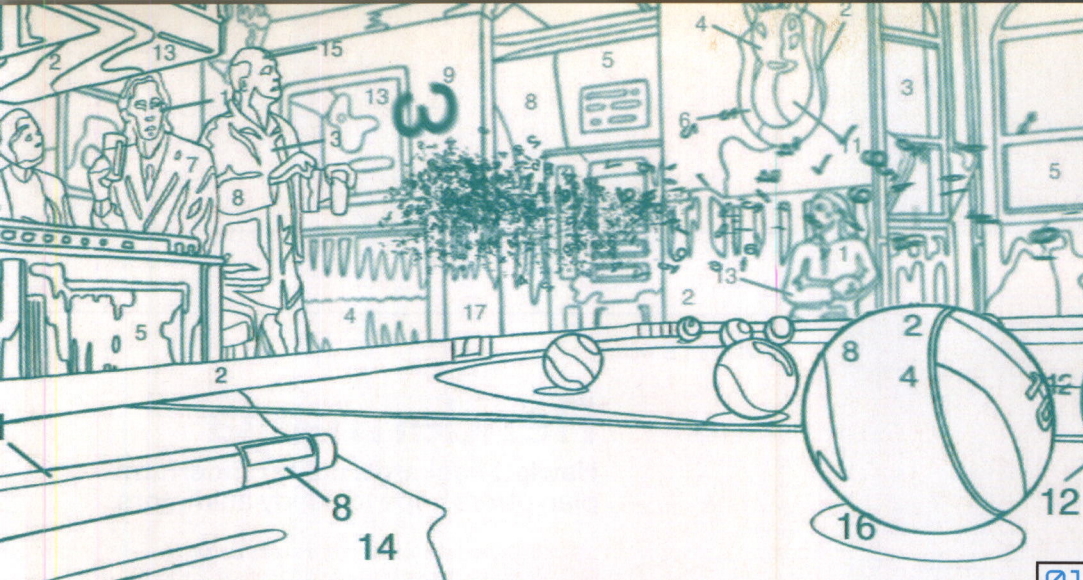
PROJECT Following Pixar's split with Disney as distributors, the venerable animation company is going ahead with *Toy Story 3* regardless.

Disney has the rights to make sequels to *Toy Story*, but has previously held off in deference to Pixar. Now, however, it appears the gloves are off, and the company is setting up a digital animation facility in Glendale, Los Angeles.

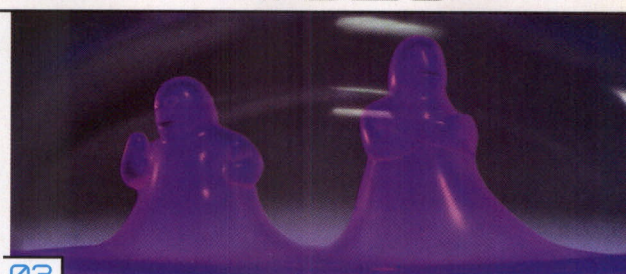
The project is headed by David Stainton, President of Walt Disney Feature Animation, and Andrew Millstein, who previously ran the now-closed animation facility in Orlando. Millstein is said to be recruiting senior animators from rival studios for the film.

To add to the concern for *Toy Story* fans, Disney Chief Executive Michael Eisner said the company is actually working on two sequels at once. A spokeswoman later elaborated: "They're working on different story ideas with the hopes there will be a *Toy Story 3*, and another after that."

www.disney.com



#013



01 03

Projects round-up

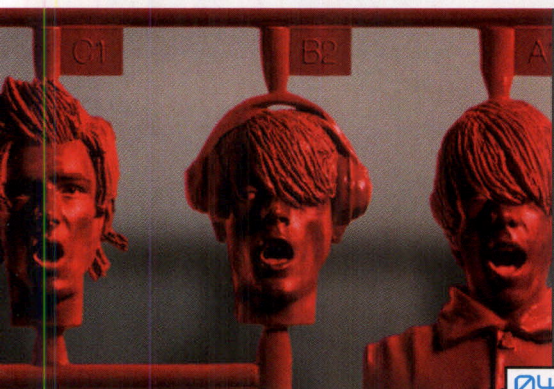
Our projects this month bring fantasy to life, warp the world into paper and feature an impossible building. Throw in some human-like insects and talking handwash, and you've got some very strange 3D worlds...

PROJECTS

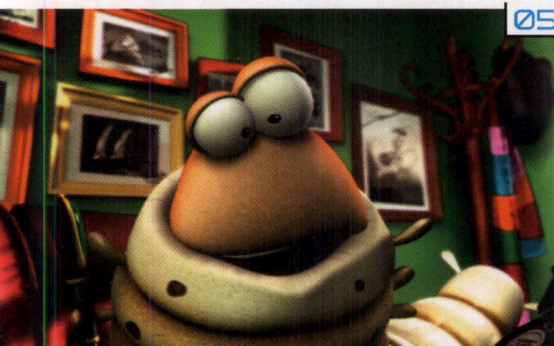
What do Gordon's Gin and Status Quo have in common? Aside from the obvious (and clearly false, say our lawyers) connection, they both feature in a new ad for the booze. The spot shows a world composed of painting-by-numbers lines and numbers, as the ancient rockers do their own number on the soundtrack. Passion Pictures produced this combination of 2D, 3D and live-action work. **[1] Gordon's Gin ad by Passion Pictures** From numbers to paper, in three new ads by Rushes for Orange. The pseudo 2D paper-world of these ads was filmed using real animated models, which were comped together using motion control. **[2] Orange ads by Rushes** Meanwhile, Rushes has also been animating the two familiar 'squirt' characters in ads for Carex Handwash, except now it's 'in girlie bottles', apparently. Rushes' Emir Hasham explained: "To convey the extra character, more detail was added to the eyes and mouth and the texture set-up, which consists of five passes for each 'squirt'." **[3] Carex ads by Rushes** Some might say that the members of boy band McFly were practically Identikit already, but in their new promo, they actually

become Airfix-style model sets. Post-production house blue created the CG models and intensive flame effects within two weeks. **[4] McFly Room on the Third Floor promo VFX by blue** More plastic passion in *I'm a Celebrity... Get Me Out of Here!* The Hive created the inter-ad ident for the fourth series, featuring a giant talking witchetty grub that runs its own casting agency. "The secrecy surrounding the names for the final celebrities meant that there was very limited time to render the second teaser, leaving little room for error," said Animator Jonny Grew. **[5] I'm a Celebrity... ident by The Hive** An anthropomorphised arthropod (try saying that after Gordon's Gin) also pops up in a German ad for mosquito repellent. The lovestruck but ultimately doomed mozzie, Max, was animated in *SoftimageXSI* by VCC Perfect Pictures, with particular attention to detail and human-like characteristics. **[6] Beiersdorf insect repellent ad by VCC Perfect Pictures** It's the end of the world as we know it in the new CBS mini-series *Category 6: Day of Destruction*. Effects house Area 51 used *LightWave* to create the extensive disaster effects of a super-storm, as well as comping entirely CGI buildings into real footage. **[7] Category 6 VFX by Area 51** Rapper Method Man

imagines his own little dystopia in latest promo *The Show*, which is conveniently brought to life with VFX by Kroma. Scenes were shot on separate sets and then comped and tracked in 3D to create an overall shot of an apartment building, often using physically impossible camera moves. **[8] Method Man The Show promo VFX by Kroma** In a similar vein, a 30-second TV spot for the new Elton John musical *Aida* features several virtual sets created by Cinevative. Since the real thing hadn't yet been completed, the company used *Cinema 4D*, *Photoshop* and *Illustrator* to build the architecture. Dancers were filmed against a 60' x 30' greenscreen and comped onto the sets with *After Effects*. The entire thing was then given a filmic sheen using the *Magic Bullet* suite. **[9] Aida promo by Cinevative** And finally to plain ol' entertainment with two new shorts from Blur Studios, called *In the Rough* and *Gopher Broke*. The former charts a caveman's progress after he's been chucked out of the family cave following an argument, while in the latter, a gopher does his best to find food – any food. Both are unashamedly cartoon-like, with traditional animation techniques used with some stunning rendering. **[10] In the Rough and Gopher Broke by Blur Studios**



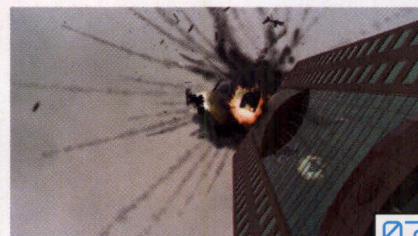
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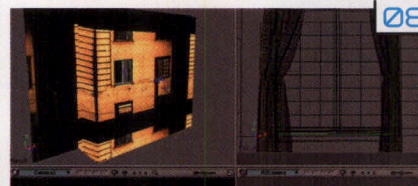
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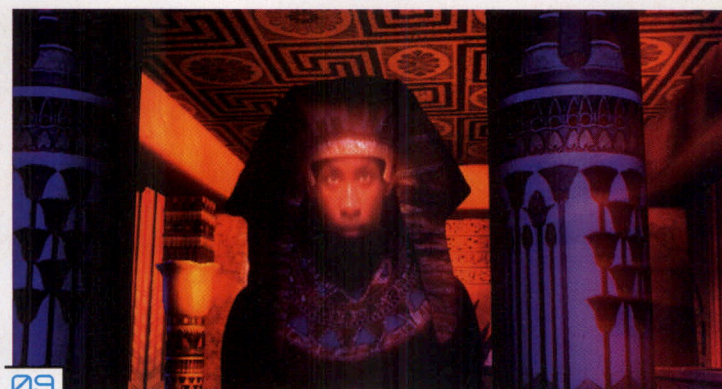
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07



08



09



10

NEWSDesk

» EVENT HORIZON

Book your tickets for 3D festivals and events, from LA to Monte Carlo and Middlesbrough



ANIMEX 2005 31 JAN-4 FEB, MIDDLESBROUGH, UK

Creativity ahoj at the biggest animation festival in Middlesbrough. Well, the only one actually, but it's still a goody, including a two-day Game event this year. Plus there's the usual mix of talks, awards, schmoozing and, quite possibly, boozing.

www.animex.net



IMAGINA 2005 2-5 FEB 2005, MONTE CARLO, MONACO

20 years old and still going strong, this trade show focuses on digital and interactive content – everything 3D, from games to architecture, is featured. Plus it's held in Monte Carlo, which can't be bad.

www.imagina.mc



ANIMATED ENCOUNTERS 21-24 APRIL 2005, BRISTOL, UK

Much missed in 2004, this showcase in the heart of Aardman territory promises the best new work, an industry day and special events aplenty. If Matt Groening likes it, we're sure you will too.

www.animated-encounters.org.uk



GAME DEVELOPERS CONFERENCE 2005 7-11 MARCH 2005, SAN FRANCISCO, USA

A must for both programmers and game artists alike, this long-running show offers a wealth of industry news and techniques from top developers, plus a new Visual Arts track.

www.gdconf.com

» PLAN AHEAD...

MACWORLD EXPO 10-14 JANUARY, SAN FRANCISCO, USA

Not strictly a creative event, of course, but one for the Mac addicts to worship at the altar of the Apple, and maybe check out the new hardware and software while they're at it.

www.macworldexpo.com

77TH ANNUAL ACADEMY AWARDS 27 FEBRUARY, LOS ANGELES, USA

Got an invite? Of course we have. Oh, hang on – that's for Animex. It's the usual glitz, schmaltz and the chance to see if Pixar can do it again with *The Incredibles*.

www.oscar.com

48TH SAN FRANCISCO INTERNATIONAL FILM FESTIVAL 21 APRIL-5 MAY, CALIFORNIA, USA

Fifteen days to see 200 films from more than 50 countries. The Golden Gate Awards is the competitive section for documentaries, shorts, animation and more.

www.sffiff.org/festival

SNIPPETS

XSI TRAINING

3D training provider 3dquakers.com has released a new download-only *Introduction to Architectural Modeling* kit for Softimage/XSI. It currently costs \$25.

www.3dquakers.com

FACIAL STUDIO

Di-O-Matic has released *Facial Studio* for Windows. Described as "the most complete software for head creation" by the company, the program supports Kaydara's FBX file format and offers over 500 controls over the 3D head-creation process. A 30-day demo is available now from the website below.

www.di-o-matic.com

MOTION BOOK

For those readers wishing to get up to speed with Apple's new motion-graphics app (reviewed on page 85 of this issue), Peachpit Press has released a book-and-DVD training resource, *Apple Pro Training Series: Motion* by Damian Allen. The book costs \$40.

www.peachpit.com

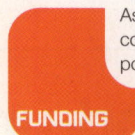
SMODE STUDIO

VJs now have a new piece of software to play with, but describing what *Smode Studio* actually does is somewhat difficult – the developers simply call it 'visual composition software'. It enables the creation and manipulation of compositions in real time, using OpenGL rendering. 3D objects, pictures, video and text with various effects are available, and the whole caboodle can be set to music thanks to built-in MIDI controls. The app costs \$425. See the site for details.

www.galago.fr

Rendermania

Hewlett Packard's utility renderfarm plan offers hope to needy animators



Aspiring animators and smaller companies could soon have access to the sort of rendering power available to the likes of Pixar. HP, in

collaboration with Alias, has set up a prototype of a utility rendering service at Hewlett Packard's labs in Bristol.

The pay-as-you-go virtual server pools have already been used to create films for a new showcase, called SE3D. The event is offering ten groups of animators from across the UK access to the *Maya* rendering service to produce a short, together with a *Maya* licence.

Although the service is primarily aimed at students, it can be used by anyone needing more rendering power.

"Utility computing has the potential to shake up the media industry by lowering cost barriers for animators and others," said Steve Hinde, Project Manager at HP Labs. "We hope services like this could uncover highly talented young people who would otherwise never be able to work in animation."

www.dshed.net/SE3D

www.hpl.hp.com/SE3D



422's *The Painter* short was produced using HP's *Maya* rendering service

IMAGE © HP

Animation Mentor

Schedules and details for innovative online training scheme announced



Further details have emerged on the Animation Mentor training programme we first revealed in issue 55. The animation school features such

industry tutors as Pixar's Carlos Baena, Bobby Beck and Shawn Kelly, and will operate entirely online.

There are two 'Paces' to choose from in the programme. Pace 1 consists of one session/assignment per week, over 12 weeks in all. Pace 2 is more flexible, with one session every other week for a total period of six months.

You can also choose between six different animation classes, including Basic Foundations, Introduction to Acting and Short Film Development. The courses are designed to be taken in sequence, starting from the basics and finishing with a complete animated film. Prices for the first four classes are \$2,000 for Pace 1 and \$2,500 for Pace 2, with pricing for the final classes to be announced.

www.animationmentor.com

Indie shorts go global

Cheaper digital distribution technology could see independent animations screened in over 5,000 cinemas worldwide by 2008

INDUSTRY Independent CG animations could soon enjoy the same kind of worldwide release schedules as movies from Pixar or DreamWorks, according to Michael Reilly of the Docspace digital cinema network, speaking at the recent Swansea Animation Days festival.

Whereas it costs around \$7.5 million to duplicate and distribute 3,000 prints of a film by conventional means, new Digital Cinema technology means that a feature-length production could be mastered, compressed, encrypted and distributed via satellite for little more than Euro1,500 (\$2,000).

"The reduced costs are going to make risk-averse distributors far more likely to take on inventive pieces of work," said Reilly. "Digital Cinema lowers the barriers of entry to cinema exhibition."

At present, there are around 262 high-end 'D-Cinemas' worldwide, equipped with the digital projection technology necessary to screen movies in the format. This figure is predicted to rise to 5,724

by 2008. Digital distribution also offers animators the chance to secure international release schedules for the kind of short-form work currently confined to specialist film festivals. Docspace plans to team commissioned animation with new documentary work in its current network of 11 UK cinemas, while CinemaNet Europe (of which Docspace is the UK partner) has more than 200 cinemas and is committed to exhibiting animation Europe-wide.

Reilly described his visit to SAND 2004 as a "fact-finding trip" to contact animators interested in submitting such work. "In the past, there were concerns that D-Cinema offered a viewing experience for audiences that was inferior to 35mm," he said, "but now there is growing evidence that for animation, and CGI in particular, it will offer a superior viewing experience. This is an opportunity those working within these fields should grasp. Docspace will be aiming to help them do just this."

www.docspace.org.uk

www.cinemaneteurope.com



With lower distribution prices, we expect to see more creative, leftfield shorts

fact! 81% OF STUDIOS IN THE US ARE NOT WORKING IN HD, ACCORDING TO A NEW TRENDWATCH HD USE REPORT

Source: www.trendwatch.com

3D World readers christen software

3D World's readers have named The Pixel Farm's latest software release 'PFHoe'

WINNERS Back in issue 55, The Pixel Farm offered some fantastic prizes as part of its 3D World competition. All the company asked in return was that entrants suggested a name for its upcoming software release. The terms of entry were that the product name had 'PF' as a prefix, and that it was somehow related to life on a farm.

Well, the entrants' imaginings spread through our Inbox quicker than an outbreak of bovine fever, and included many an undreamt-of barnyard oddity. However, after much deliberation the winner was deemed to be *PFHoe*, sent in by John O'Donnell from Worcester, MA, who wins a full licence of *PFMatch* and *PFBar*. Runner-up Andy Davenport from Surrey wins a *PFMatch* licence for *PFTrack 'n' Slap*, while *PFMatchMoo-v* (James Mitten, Athens), *PFOink* (William Dewé, Bournemouth/Philip Oldham, Hyde) and *PFastTrack* (Nick Arshinkoff, Tampa) each earn a goodie bag and t-shirt.

www.thepixelfarm.co.uk



Entrants to the Pixel Farm competition in issue 55 came up with some wild suggestions for naming the company's new software. *PFHoe* was deemed the best, earning reader John O'Donnell a full licence of *PFMatch* and *PFBar*

SNIPPETS

IMAX Robots, Cameron anime and Watchmen...

» After the IMAX 3D version of *The Polar Express* performed in such spectacular style on the huge screen, IMAX has wasted no time in snaffling up the rights to film Blue Sky Studios' *Robots* in the DMR (Digital Remastering) large-format process, which is due for release on 11 March, 2005. www.imax.com

» James Cameron will reportedly direct the live-action adaptation of Yukito Kishiro's comic book, *Battle Angel Alita*. Speaking on National Public Radio, Cameron confirmed that the project would star a CG-animated main character, and that the film would be shot in 3D using the stereo imaging system that has been in development for documentary projects. www.npr.org

» A Paramount production of the cult postmodern 1980s graphic novel *The Watchmen* (by Alan Moore and Dave Gibbons) is set to be helmed by *The Bourne Supremacy* Director Paul Greengrass, according to *The Hollywood Reporter*. The film is thought to be heading for a Summer 2006 release date. www.hollywoodreporter.com

THE COST OF PRICE CUTS

In-fighting over prices ultimately threatens the health of all 3D developers, argues Luxology's Brad Peebler

Current pricing trends of 3D software should be a cause for alarm for any 3D artist. Cheaper products may initially seem like a good idea, but the situation is actually creating a disservice to the user and the entire industry. The 3D software industry is not an elastic market, which is to say that dropping product prices is unlikely to stimulate significant market growth.

There are always multiple barriers to entry for a new user entering a market. One is price, but in highly technical fields, the more important barrier to entry is the time and effort (as well as education cost in many cases) that a user must invest to master the trade and the technology. *Maya Unlimited* could be free and it wouldn't cause material market expansion.

With the right artists and enough time, you could use any number of free 3D programs to create *Jurassic Park*-quality graphics today. In fact, the effects for *Jurassic Park* were created using programs that are now over 11 years old: the visual effects artists back then would have killed to get their hands on the tools you can download for free today. You get more real-time graphics power in a PlayStation 2 than ILM had in its entire studio 12 years ago.

So if there are free tools that provide this level of power, why isn't the 3D market larger?

Because 3D is hard to master and it's time consuming, even for the most talented 3D artist.

Dropping prices won't fix that.

Recently, I heard an industry insider refer to the *SoftimageXSI* price drop [covered in issue 58] as "attempted murder suicide". While I think this description is a little over the top, the point behind it has merit. The only thing that prominent companies such as Alias or Softimage could hope to achieve with dramatic price shifts is a grab at the existing user base of other applications, in the hope of converting users from one pipeline product to theirs.

Massive price drops typically indicate one of two things: desperation or an aggressive play for other companies' market share. It becomes a game of chicken: who can keep the price down the longest and remain alive. Basically, the strategy is to price the other companies out of the market so that you own the market, at which time your price can come back up safely. If this is what we're seeing in the 3D market today, it's obviously a disservice to users because competition stimulates growth and choice is always a good thing for the consumer.

The best way to provide easier, better 3D tools and improve this market is to expand it. The best way to develop the 3D industry is through specialisation. Application architectures and interfaces must be flexible enough to allow the technology to be focused on and delivered to users of other markets. 3D content creation is an incredibly powerful communications tool and could be leveraged into many new areas. The key is to find the right 'pricing sweet spot' that benefits the user, vendor and industry as a whole. Of course, this isn't an easy task, due to the current range of products and prices, but I believe that with the right research, it can be accomplished successfully.

I am personally in a funny position now. As an end-user of 3D, I've always favoured companies who have their roots in art creation, like NewTek and Softimage, over apps that have their roots in engineering, like *Maya* (design is a driving force behind Alias) and *3ds max*, with its Autodesk roots. However, as a business person I find myself at odds with Softimage and proud of Discreet for holding its ground on the pricing of *max*. Instead of dropping its price, Discreet has added functionality, making it a more compelling package, and this is the correct approach. The users are best served if the companies compete on technology and quality, not pricing.

BRAD PEEBLER
www.luxology.com

Brad Peebler is the President of Luxology, the company behind 3D modelling application, *modo*



The LL-151-3D monitor could be the first of many 'true' 3D display systems

SHARP 3D DISPLAY

A monitor that displays actual 3D images? What'll they think of next?

The snappily-named LL-151-3D is the first standalone display from Sharp to incorporate 3D technology. It's a 15-inch LCD monitor that can display true 3D images to the naked eye, via a parallax barrier.

Of course, the display can also be used in 2D mode for other applications. In 2D mode, the parallax barrier is opened so that the same light reaches both eyes as normal. In 3D mode,

the barrier separates light for each eye, so the image appears three dimensional. The drawback is that applications must support a 3D mode with stereoscopic viewing (usually via 3D glasses) – the display can't automatically turn 2D images into 3D. Since most 3D apps don't do this, the monitor's appeal may be limited.

The LCD is available for £1,169 from Inition. www.inition.co.uk



Adobe

Adobe awards

Adobe covets student talent for its 2005 Design Achievement Awards

Adobe has announced a call for entries for its 2005 Design Achievement Awards. It's the fifth year of the popular competition aimed at students in all creative disciplines, from graphic design to photography and, of course, 3D.

Budding designers must use Adobe software to submit entries in any of nine categories, which are then judged by a panel of industry experts. This year, the competition is open to seven more countries, including Ireland, France and Germany, in addition to the US, UK and Canada.

The winner in each category will receive a trip to New York to publicise their work, \$5,000 and a whole heap of Adobe products, along with almost guaranteed interest from prospective employers. Entries must be submitted between March and April 2005, and the winners will be announced in July. For full details, see the website below.

www.adobe.com/education/adaa/main.html

Trendwatch studio report

People soak up the dollars, says 3D industry report

INDUSTRY A new report from market research specialists TrendWatch cites staffing as the most expensive cost for US studios. The 50-page *Cost Allocation Report* is based on surveys of animation and visual effects studios, post-production houses, video editing studios and more. "Animation and FX studios allocate twice as much of their budgets for workstations and 25% more for people compared to other types of US studios," said TrendWatch's Founding Partner, Jim Whittington. "This tells us that hiring the right employees and equipping them with the right tools is critical to their success. When these studios allocate costs for adding new capabilities, 24% are for employees/freelancers, 18% for new software and 15% for workstations."

The report costs \$575 and is available from: www.trendwatch.com

People – they're an annoying but unfortunately necessary expense



Keane's CG hotel frolics

Polite rock group makes video in hotel room shocker

PROJECT Those poignant popsters Keane are busy people these days, having released a ubiquitous chart-topping album, *Hopes and Fears*, and seemingly never being off the telly. So while on a world tour, they understandably had precious little time to film footage for a TV commercial promoting their CD.

Enter production company Mini Vegas, aka PixelShifter, who barricaded the band in their Paris hotel room, removed all the furniture, blacked out the windows and set

up greenscreens. Using laundry racks as 3D references, they then persuaded the fresh-faced falsettos to whip through parts of their greatest hits.

Back at base, the DV footage was composited into numerous styles, before camera tracking and 3D animation were added, using a few handy shaders to jazz up the images. Bish bash bosh – a mere week and a half's work and you have several 30- to 40-second spots, and not a single rock 'n' roll cliché was harmed in the entire process.

www.pixelshifter.nl

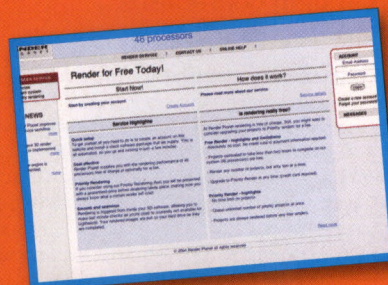


Keane peddle more chart-friendly tunes from the comfort of their Paris hotel room. Thanks to greenscreen techniques, the footage was then transformed into a number of eye-catching ads by production company Mini Vegas



» ON THE WEB

Our fave five sources of 3D inspiration and advice to point your browser at this month



RENDER PLANET

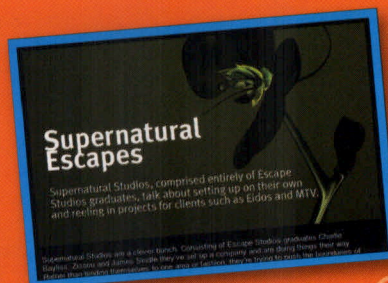
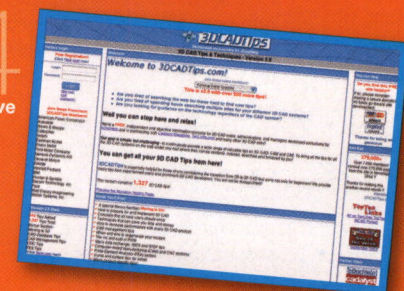
A mass rendering service for free? Surely not. But oh yes, that's exactly what this website offers. Projects that are estimated to take two hours or less can be churned through on a 46-processor setup, with files from *Maya*, *LightWave* and *Blender* currently supported. A priority paid-for service is also available.

www.renderplanet.com

3D CAD TIPS

The clue's in the title. This is a free, objective and independent source of tips and techniques for all major CAD packages. There's a special emphasis on making the move from 2D to 3D packages, and there's a nice community feel, with folks adding their own advice. 785 tips and counting...

www.3dcadtips.com



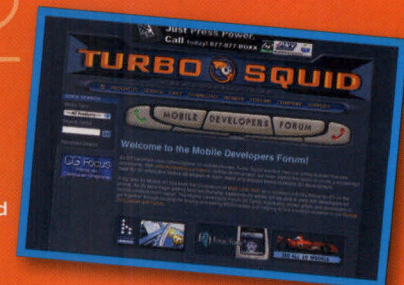
SUPERNATURAL ESCAPEES

Three graduates of Escape Studios, the excellent 3D training system, have recently founded Supernatural Studios (www.supernaturalstudios.com). They've already attracted a lot of attention and work from the likes of MTV, Eidos and Esquire, as well as creating the intro sequence for SE3D (see page 14 for more information). www.escapestudios.co.uk/Press/Press_Profile_Supernatural.html

MOBILE DEVELOPER'S FORUM

The excellent Turbo Squid has launched a new forum aimed at mobile game developers, and specifically anyone using Java M3G. Hybrid Graphics, whose M3G code is used in 3ds max 7, will effectively be running the forum and providing expert input, while mobile content will also be sold on the website.

www.turbosquid.com/mdf



ANIMATION TRIP

Actually a store selling computer animation DVDs, this website offers far more than that via a portal/links page. It's regularly updated and manages to pluck some juicy stories from around the web. An explanation of what the whole thing is would be nice, though.

www.animationtrip.com

NEWSDESK

NEWS FOCUS

Aardman's new clothes

Aardman and Axis Animation collaborate on the latest BBC ad, and the result is an innovative new technique for facially animating characters...

FX FOCUS

The BBC's latest push to get people to understand the wonders of its digital channels comes in the form of various animated ads now showing on terrestrial channels. The spots take the idea of "You can teach an old dog new tricks", except that in this case, the dog in question is actually a TV set equipped with a sparkly new Freeview box.

The ads were created at Aardman and Axis Animation, although you wouldn't necessarily know it from the style. They feature a new technique for a kind of lip-synching and texture mapping combined, which gives the characters' faces an extremely distinctive appearance – as well as making them very hard to describe!

Luis Cook, Co-Director of the ads, along with Steve Harding Hill, explained: "We shot live-action actors, over-emphasising their mouth shapes, took their features and edited them to give a clunky stop-motion feel. The footage was then stabilised, used as a texture map and placed onto the already animated CG models. It took quite a bit of jiggling around to make it work – eyelines, additional textures and so on. Then chin and brow movement were added as the last animation pass."

As it turns out, the technique was less of a bold experiment than an expedient: "Time, or lack of it, prompted us to use this technique," said Cook. Aardman had already been working on a series proposal called *The Dregs*, which both the agency DFGW and the BBC loved.

"The visuals were photo collage, but we only had five weeks to board, design and produce the first one-minute ad, followed

by the next two weeks later and the next two weeks later again." Therefore, he explained, sculpted lip-synching would have been impossible. Although tests had been done with models for *The Dregs*, this was the first time it had been used with moving footage. "The process was a bit risky and experimental, but the BBC was very excited and enthusiastic and encouraged us to just go for it," he said.

The work was split between Aardman in Bristol and Axis Animation in Glasgow, headed by Dana Dorian. Most of the animation was produced in *LightWave*, with some modelling in *Maya*. Stabilisation was done in *After Effects* before comping in *combustion*. Interestingly, *Flash* was used for background characters and their animation, while hundreds of photos were taken all around Bristol and made into a collage to produce the background artwork.

"It wasn't a conscious decision to move away from any style – it just seemed relevant to the script," Luis says. "We

also hadn't seen it done before, which obviously makes things interesting. Aardman as a company clearly has a house style that everyone recognises, but it also produces a lot of work that wouldn't be immediately synonymous with Aardman. This is one of those jobs."

Aardman and Axis are understandably pleased with the results: "As are the BBC, who are about to commission another three ads in the new year, unfortunately with a similar gruelling schedule," Luis adds, somewhat ruefully.

www.aardman.com
www.axisanimation.com

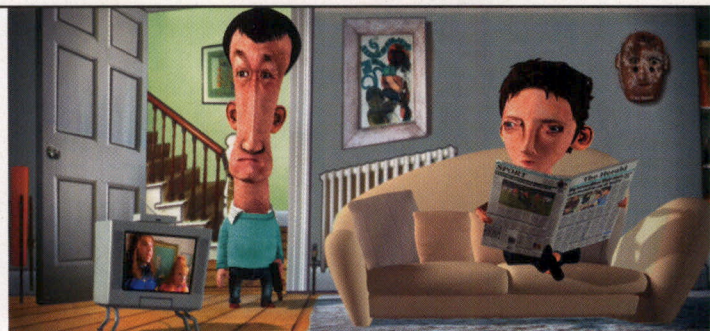
FILM ROLE

How Axis added to Aardman's amazing new-look animation

Although Aardman handled the production of the shorts, much of the animation was shared with Axis Animation in Glasgow. CG Supervisor Dana Dorian and Lead Animator Steve Townrow handled the technical aspects, along with Executive Producer Richard Scott. Post production was done at One Post, with Rob Pizzey performing digital master grading and Emma Wattersone producing. You can expect to see a similar style in *The Dregs*, which is the animated series that Aardman was already working on and which became the inspiration for the ad's style.

BELOW

The distinctive and eye-catching style of the new BBC Freeview adverts differ greatly from what's normally expected from Aardman Animation



FACT FILE

TITLE
BBC Digital Freeview ads

PRODUCTION COMPANY
Aardman

DIRECTORS
Luis Cook and Steve Harding Hill

RUNTIME
Main 1 x 60 sec, 1 x 40 sec
Content 2 x 40 sec
Xmas 1 x 40 sec

TEAM SIZE
Around 20

TIME TAKEN
Five weeks

SOFTWARE USED
LightWave, *Maya*, *After Effects*, *combustion*, *Flash*



SNIPPETS

Puss in Boots the movie, and life after Shrek

>> DreamWorks has signed writers Ed Decter and John Strauss to script a spin-off CG feature starring *Shrek 2*'s Puss in Boots character, voiced by Antonio Banderas. DreamWorks is reportedly undecided on whether to go for a theatrical or straight-to-video release. Surely it can only be a matter of time until the franchise's true star, the Gingerbread Man, gets his own movie... Meanwhile, Joe Stillman, the writer of the original *Shrek* movie, has been hired by Fox 2000 Pictures for a film adaptation of *Percy Jackson and the Lightning Thief*, a children's tale of warring gods in present day America. Stillman's previous writing credits include *Beavis and Butt-Head Do America*. www.variety.com

Mill goes back to nature for O2

Latest TV ads turn nature into one big mobile handset

PROJECT

O2's visually breathtaking but rather bemusing ads for its mobile phone network continue with a new spot extolling the joys of the X-Range handset. Mirroring its capabilities for internet, games, video and so on, natural scenes in the ad evolve into technological offshoots: falling office blocks resemble *Tetris* shapes, the lights in an office building light up in patterns like a graphic equaliser, and so on. The Mill was given the task of creating the ad's VFX, with shoots in Berlin for the city buildings and HDR environments. Office blocks were then created as CGI models and animated accordingly.

A lighthouse scene in which the light flashes in time to the soundtrack proved particularly tricky: the live-action sea was mixed with a stormy CGI sea, the sky was replaced, the lighthouse was comped in from another location and flashing light was added in post, using a proprietary algorithm.

True to the 'digital mixing with the natural' premise, the ad ends with a shot of a laptop-like scene, consisting of a tall building looking down onto a screen-like swimming pool.

www.mill.co.uk

The Mill's visual effects for the latest O2 advert apply a digital metaphor to real-world scenes

fact! OVER \$2 MILLION - THE OPENING WEEKEND BOX-OFFICE FIGURES FOR THE POLAR EXPRESS IN IMAX THEATRES IN NORTH AMERICA

Source: IMAX Corporation

PS2 Killzone cinematics from Axis

PlayStation 2 game gets added pizzazz with intro by Glasgow's Axis Animation

PROJECT

The recent PlayStation 2 game *Killzone* may not have garnered great reviews, but its art design is exemplary. Perhaps most stunning is the intro sequence, created by Glasgow's Axis Animation, in collaboration with developers Guerrilla Games. The animation is based on a bombastic performance by

Brian Cox, playing the leader of the evil Helghasts. Axis worked with Audiomotion Studios to motion-capture Cox's voice and movements. "Nuances driven from speech come across well once translated into CG, and Brian's years of experience showed, resulting in a chilling performance," said Director Graham McKenna.

Further mo-cap was done for the ensuing battle sequences, with modellers

increasing the detail on existing in-game characters and environments. Visual effects, such as explosions and tracer fire were added in *LightWave*, using procedural particle systems that made the whole process almost automatic.

Axis Animation is currently working on another as-yet unnamed project for Sony Online Entertainment.

www.axisanimation.com

SNIPPETS

Softimage|XSI 4.2 ships, Piranesi 4 for Mac nears

>> Avid has released new versions of *Softimage|XSI*, incorporating significant new feature updates to the *Essentials* and *Advanced* versions. *XSI Essentials* now comes with compositing and paint features that were previously only included in the *XSI Advanced* package. Meanwhile, the *Advanced* version of 4.2 now includes *Softimage|Behaviour 2*. *XSI Essentials 4.2* costs \$1,995 and *XSI Advanced* costs \$6,995. Those who bought *XSI 4* can get the updates as free downloads from the URL below. www.softimage.com/download

>> Informatix has announced that the Mac OS X version of *Piranesi 4* (reviewed on page 84) will be available early in 2005. The unusual render-painting application has added over 300 new cutout and texture images to its library, and now has the ability to use 3D models in 3DS, Sketchup, DXF and Archvision RPC. Informatix has also incorporated many user-requested enhancements to the software. Customers who purchase the current version of *Piranesi* for Mac (*Piranesi 3.1*) will be entitled to a free upgrade to *Piranesi 4* when it ships. www.informatix.co.uk

Axis Animation's cinematics for *Killzone* feature chilling motion-captured performances from actor Brian Cox



3December show report

All the news from the London leg of Alias's event, from werewolf spit to training tomorrow's Maya users

SHOW REPORT

3December, Alias's annual user event, took place simultaneously in London, Toronto and 23 other venues around the world last month. The London exhibition was staged at Canvas, a location in Kings Cross that was part trendy underground club and part disused warehouse.

3December isn't SIGGRAPH. It's not a forum for the launch of the year's most life-changing software, nor a place for developers and production houses to compete over who can build the biggest stand or run the loudest tutorial. Instead, it's about Maya users, new and old, getting together to learn new techniques and swap ideas.

On stage, The Moving Picture Company, responsible for many of the effects in the latest *Harry Potter* movie, gave a behind-the-scenes look at the mechanics of animating a character that had to move between walking on two and four legs, and the various secrets of creating werewolf chin hair and spit.

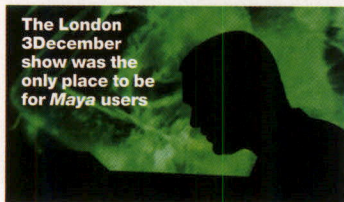
Later, there were two presentations on bad habits. This is just the kind of thing Maya users want to hear about – real-world examples of how animators cut corners and approach problems sideways to get the job done on time. Andrew Daffy's first example, from a recent ad featuring fish swimming through central London, focused on getting realistic gill movement by creating a bone for every vertex on the structure.

On the exhibition floor, stallholders looked towards the Maya users of the future. Two exhibitors in particular stood out by offering Maya courses for 11- to 15-year-olds. Both showed some impressive animations, and both had big ideas about creating a 3D-literate society. KLF (www.klfproductions.co.uk) are already showing their work on London buses, while Lewisham City Learning Centre (www.lewisham-clc.org.uk) is offering a BTEC course in 3D animation, and has shown its work on Channel 4.

www.3december.com



The London 3December show was the only place to be for Maya users



Imagina 2005 discount offer

You can get into February's Imagina show in Monaco for half price with this fantastic 3D World ticket offer

OFFER

The 23rd Imagina European Digital Content Creation Trade Show, taking place between 2-5 February, is arguably Europe's premier trade show for digital content professionals, and we've got an amazing discount on tickets for you. All you need to do to secure a 50% discount on the entry fee is visit the link below and fill out the online form.

Imagina promises a varied mix of trade and inspiration. Its conferences, market and international awards competition appeals to all the different 3D fields and links in the digital content chain, from videogaming to 3D animation and post-production. This year, design, architecture, mobiles and wireless are sectors of particular focus. Away from the business end, Imagina also presents a lineup of VFX professionals dissecting their contributions to the latest blockbuster films, and confirmed speakers for this year's show include George Borshukov of *Matrix* fame and Matt Aitken from Weta's *Lord of the Rings* production. Finally, to wind down, the internationally renowned Imagina Awards ceremony will honour the best work from more than 600 productions created in 2004, from a total of 58 countries.

What self-respecting visual effects company would refuse such an essential-sounding research trip that just happens to be held in Monaco? Visit the website below to register and qualify for your 50% discount.

www.imagina.mc/3dw

SNIPPETS

NEW ZBRUSH FEATURESET

A root around in Pixologic's *ZBrush* forum reveals a wealth of information and sneak preview movies about what's in store for the next version. Visit the URL below and have a look at the *ZBrush* Central section to find out more. www.pixologic.com

GHOST PLUG-INS

Ghost 3D has released *3ds max 7* plug-in versions of its line of 3D modelling, conversion, digitising and reverse engineering products. They include *Power Modeler Pack*, *Power Digitizer Pack*, *ResErect*, *Scribe-iT DCC* and *Surf-iT*. See the site for full details and pricing. www.ghost3d.com

SPEEDTREE 3

Digimation has released *SpeedTree 3* for *3ds max 4* and upwards. New features include support for flared trunks, advanced wind controls, a new sample library and a better foresting tool. *SpeedTree 3* costs \$395. www.digimation.com

RENDERPRO

Strata has shipped *RenderPro*, a new network-rendering application for *Strata 3D CX*. *RenderPro* comes with a free open-source network connection application to assist users in distributing rendering files. It costs \$139. www.strata.com

HELICAM

Craft Animations has released the *Craft HeliCam* for Maya, a plug-in enabling joystick-controlled recording of camera shots. It costs \$499. www.craftanimations.com

Amapi Pro 7.5

NURBS a-go-go in the latest release of Amapi's pro modelling package

PRODUCT

Amapi, you're happy and Eovia is particularly happy to announce the release of *Amapi Pro 7.5*, the first major update of its NURBS modelling app. Among the biggest changes are a more complete 2D drawing toolbox, with a new Bezier curve and editing tool, plus advanced NURBS snapping assistants.

There's also the impressively titled Dynamic Geometry Navigator, which gives access to the object construction history and instant control on all levels of components. A new renderer, based on *Carrara 3*, promises improved texturing and rendering.

You want NURBS variable-radius filleting? You've got it now, along with a display engine that's claimed to be three times faster, and which sports improved Import/Export options to boot. The company has added other miscellaneous improvements too, all based on user feedback.

Amapi Pro 7.5 is \$799 with upgrades from version 7 Pro at \$99 and *Designer 7* at \$329.

www.eovia.com



ImageModeler 4

After a lengthy wait, Realviz's photo modelling app debuts on the Mac

PRODUCT

Realviz's *ImageModeler 4* is now available for the Apple Mac, following a Windows release in August last year. This innovative software is used to create accurate 3D scenes from photographs by extracting the necessary information from the stills and then automatically texture-mapping objects.

New to version 4 is the 3D/2D integration tool, which enables you to incorporate existing CAD projects into 2D photos. The UV Mapping Editor does just as it says, while you can also now apply textures obtained from sources other than the scene. There's a QuickTime VR Object Movie export for sharing models, and the new version offers additional calibration constraints for CAD purposes too.

ImageModeler 4 for Mac costs the same as the Windows version, which is \$1,380 (1,200 euros). Upgrading from the Windows version 3.5 costs \$520 (450 euros), while upgrades from earlier versions will retail for \$690 (600 euros).

www.realviz.com

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CLOSE UP

CITROËN 'TRANSFORMER'

In the latest advertisement featuring CG from Embassy Visual Effects, car advertising is taken somewhere it's never ventured before – onto the dancefloor BY MARK RAMSHAW

DETAILS

TITLE

Citroën 'Transformer'

AD AGENCY

Euro RSCG

DIRECTORS

Neill Blomkamp

RUNNING TIME

30 seconds

FIRST BROADCAST

August 2004

URL

www.theembassyvfx.com

TEAM SIZE ON PROJECT

Six

TIME TAKEN

Five weeks

SOFTWARE USED

Maya, mental ray,
RenderMan, Digital Fusion

Such is the growing reputation of Embassy Visual Effects that rumours were rife about its involvement in the latest Citroën ad – featuring a Citroën C4 car morphing into a robot that pulls off some rather slinky dance moves – well before any official announcements were made.

Although well known to animation aficionados for its futuristic Tetra Vaal spec commercial, it was Embassy's more recent work on the Nike 'Crabs' and 'Evolution' spots that attracted the attention of London-based agency Euro RSCG. "When they approached us, the basic idea was to have the action set in a warehouse, and they didn't envisage doing it as a fully CG ad," says Embassy President, Winston Helgason. "We convinced them it could all be done digitally. Even the Citroën car is CG."

"Instead of shooting the ad in the usual way, we went to a rooftop in downtown Vancouver, and shot hi-res digital stills. These were stitched together as a panoramic image," says Helgason. Foreground objects were then built as 3D elements. "The geometry was pretty much based on the original scene; we just altered a few details, such as removing the Canadian flag from a building."

Aside from the photos, little more than multiple chrome ball exposures to generate HDRI maps were used: "Recreating the environment digitally also eliminated the need for any tracking, which can sometimes be an issue when you've got depth of field and motion blur to deal with," says Helgason. "Neill [Blomkamp, the director] hand-keyed all the movements, using a setup that offsets the camera's motion a little, to replicate the way a real camera crane system reacts."

For the vehicle and robot the first step was to obtain a 3D scan of a real Citroën C4. For this, Blomkamp and VFX Supervisor

Trevor Cawood headed over to Paris with Carlo Trulli from Spy Films, the Toronto-based company producing the project.

"The data produced was really dense – about five million polygons," says Helgason. "Paraform was used by Viewpoint to produce a model somewhere around 150,000 polys – a little cruder, but still with all the right dimensions. Once we got that back, the OBJ file was converted to LightWave, and a team of three then spent five days modelling anything that wasn't covered by the scan, such as headlights and the complex detailing on the front grille." With the vehicle complete, work could then begin on the transformed robot. While the key components are lifted from the basic vehicle design, a bit of artistic licence was taken when it came to adding all the internal components, hydraulics and joints. Transformers toys provided clues for constructing something suitable. The model rig was then animated using motion capture. "We brought a dancer in to perform the moves," he says. "The guy did the whole sequence in one performance. We actually got him to perform against three different audio tracks, and then chose which one to use later. As soon as we played back the mo-cap files in sync with the audio, we knew the ad was going to work."

Helgason says it wasn't too difficult to transpose the movements of a human dancer to a bulky robot: "The sense of weight was basically provided by adding a little camera-shake in compositing. The sense of scale was an issue, as there are no humans in shot, but it was achieved by choosing a few upward angles to emphasise the robot's height."

Adding the transformation from car to robot, and then back again, was more of a challenge. Here, the motion-capture data provided by the dancer had to blend smoothly with hand-animated movements. "For the ad's end sequence, when the robot folds in on itself, it lasts just seven frames – but there was a lot of thought put into it," says Helgason.

The finished ad was digitally delivered to the clients at the end of July, making its debut a mere five days later. Since then, Citroën has aired the ad relentlessly in the UK, and used hi-res robot renders for a related marketing campaign – clearly a satisfied customer: "They love it!" says Helgason. "In fact we're just completing work on a version that advertises a four-door edition of the car right now." ■

FURTHER VIEWING

www.theembassyvfx.com

The Citroën 'Transformer' advert is now showing on all major UK TV channels. Find out more about Embassy Visual Effects by turning to page 36 of the magazine

FREEZE FRAME

A gleaming Citroën C4 sits in an empty rooftop car park. A funky dance track – Jacques Your Body (Make Me Sweat) by Les Rythmes Digitales – fades in. The car jerks to life, and the Citroën transforms into a towering robot. It begins to dance to the music, performing a series of perfectly choreographed movements. Seconds later it jumps into the air, and the components spin around and fold in: the robot has transformed back into a car.



#023

PHOTO GENIUS

"Photo reference helped with the look of the car, but a lot of it comes down to Simon van de Lagemaat, Chief Technical Director," says Embassy Visual Effects' President, Winston Helgason. "He's very good at reproducing the way cars look, writing shaders, testing renders and going back and forth to get the look of both the paint and chrome areas just right."

FENDER RENDER

Rendering was done in *LightWave*, with HDRI GI and full tracing providing reflections. "We did a lot of compositing, sending out the CG in layers to make tweaking easier. Citroën wanted one element brighter so we ran a separate pass for that," says Helgason.

ROBOT SKELETON

The animation was obtained from a motion-capture session at LA's Blur Studios. "The sensors were simply based at each joint on the dancer's body, with 28 bones forming the skeleton. Then the robot's multiple pieces were parented to the bones," says Helgason.

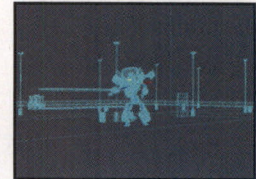
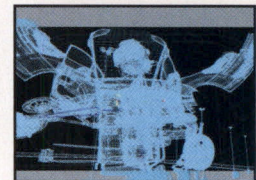
**1 BUILDING A NEW CAR PARK**

Photo stills were stitched together for the backdrop. Geometry was built for the foreground buildings and car park. "It allowed us to do all our animatics using the environment," says Helgason. "We were able to try 20 different versions until we got the one we wanted; shooting in-camera would have left us stuck with just one pathway."

**2 MAKING TRACKS**

"The final robot is pretty dense," says Helgason. "We came in somewhere around two million polygons once Subdivision Surfacing was applied. The chest area, which is constructed from the car bonnet, is particularly detailed. Even elements like the tyres are carefully modelled. We didn't use Bump maps; every tread is there in the 3D geometry. With that level of detail, all the lighting and shadowing reacts in just the right way."

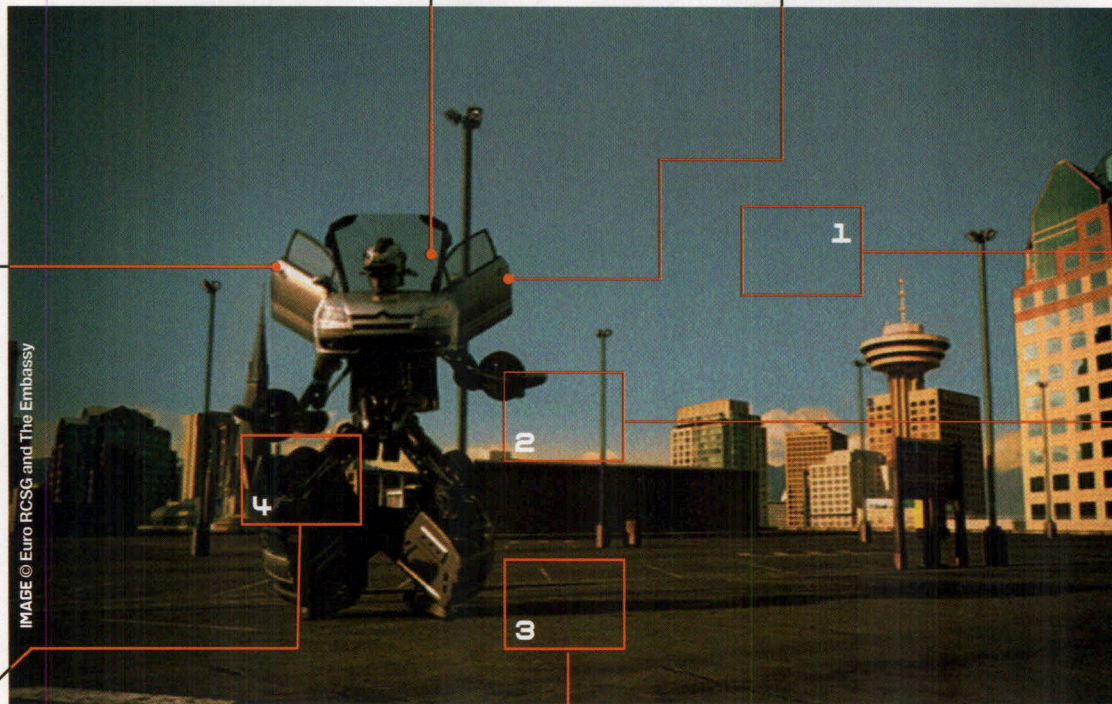


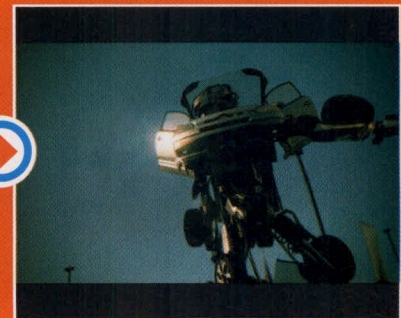
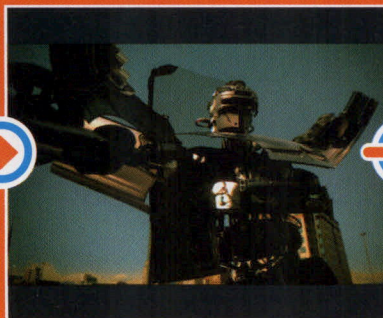
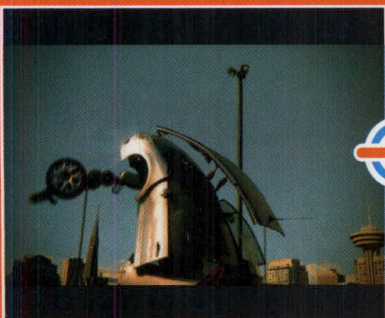
IMAGE © Euro RSCG and The Embassy

4 DANCING GEAR

"The robot was animated using motion capture," says Helgason. "We only made subtle changes to account for driving a 50ft tall, bulky object using a 170lb performer, such as changing the rotation on a bone to prevent any intersections."

**3 ROBOT IN DISGUISE**

"We looked at Transformers toys," says Helgason. "Some have the rear portions of the vehicles at the back. Our client wanted viewers to see as much of the car as possible, so we placed them on the front legs."





2004: A 3D ODYSSEY

The intrepid tale of how a small team of British animators overcame enormous odds – including having to learn Maya from scratch – to accomplish their mission. Come in Framestore CFC's 3D department, do you copy, over?

BY ED RICKETTS

ABOVE *Space Odyssey: Voyage to the Planets* was one of the BBC's flagship educational and science productions. It contained a massive amount of CGI effects and, as a result, Framestore CFC was pushed to its limits when it came to both research and production

Anyone who saw *Space Odyssey: Voyage to the Planets* on BBC1 recently will most likely have been impressed by two things: the scale of the project, and the fact that – for once – television sci-fi effects didn't look as if they'd been filmed using an empty washing-up bottle and some sticky backed plastic.

Consisting of two one-hour episodes, *Space Odyssey* is closer to its Kubrick namesake than a Hollywood blockbuster. Although clearly dramatised, it attempts to show some of the challenges that could realistically face a team of five deep-space astronauts as they penetrate to the heart of the solar system. There is no quick jaunt to the

moon, either: the six-year journey sees stop-offs on Venus, Mars, and the Jupiter moon of Io.

Along the way, the astronauts study various cosmic phenomena and, naturally, get into some close scrapes with radiation sickness, cosmic rays and so on, all for the purpose of our entertainment. Their temporary home is a giant spacecraft called Pegasus (after the mythological horse): a 1.3km long behemoth powered by a nuclear fusion reactor. Its interior has the equivalent space of ten jumbo jets, carries 57 tonnes of food and 80 tonnes of oxygen. There are also five landing craft, designed for specific planets, plus a variety of unmanned probes. In short, it's real *Boy's Own* stuff, but with the added remit of being both scientifically

#025



ABOVE Many of the planetary surfaces, particularly Mars, were filmed on location in Chile – although digital mattes were also used extensively

accurate and, hopefully, educational. The series was created for the BBC and Discovery Channel by Impossible Pictures with Framestore CFC – the same partnership that produced the phenomenally successful *Walking with...* series.

But what isn't apparent on screen are the real hardships the effects crew at Framestore CFC faced while they made the series. The challenges of *Odyssey* were very different to those of previous series – both in terms of content and style. As Joanna Nodwell, Framestore CFC producer, notes: "In previous collaborations with Impossible Pictures, we'd placed CG creatures in real environments. Here, we faced the challenge of creating CG spacecraft *and* environments, as well as the physical phenomena that the astronauts encounter. It's also a drama-documentary – very different from the natural history style we're used to."

But as it turned out, style was the least of their worries; with an enormous workload, a production pipeline change, and attention to scientific detail being paramount, the team underwent an odyssey of their own.

UNCHARTED TERRITORY

Effects filming began in September 2003, with location shoots in Chile providing raw material for the Venus and Mars environments. Meanwhile, other surface locations were being built at the famous Pinewood Studios, with footage of the Mission Control rooms shot at the European Space Agency. To simulate zero-gravity effects, the team travelled to Moscow for several parabolic flights: massively steep ascents to 8,000m or so, followed by a virtual nosedive, which effectively induces weightlessness. Both cast and crew were aboard, with VFX Supervisor Tim Greenwood setting up a complete greenscreen rig for later compositing. Back on earth, Framestore CFC began modelling the jewel in *Odyssey*'s crown: Pegasus.

"INDIVIDUALLY, IT WASN'T DAUNTING. BUT WHEN YOU PUT IT ALL TOGETHER AND REALISED JUST HOW MUCH WE HAD TO DO – THAT WAS THE SCARY THING."

DARREN BYFORD, SUPERVISING TECHNICAL DIRECTOR

"We thought we were in for an easier time," says Mike Milne, Head of Computer Animation. "We were wrong." With nine months in which to complete roughly 400 3D shots – 700, including compositing – the team couldn't afford to daydream: "That's about the average number of shots we're usually expected to do in that time," explains Supervising Technical Director, Darren Byford. "But on this, the workload was much greater because of the variety of the shots. We had to do the spaceship, the landers, the astronauts, particle work, environments and so on. It just happened to be the first time we'd tackled fluids and particles, too."

For Sarah Tosh, who was in charge of the modelling team, the pipeline was a whole new experience. "We mainly

FACT FILE

COMPANY

Framestore CFC

LOCATION

9 Noel Street,
London, W1F 8GH

CONTACT

+44 (0)20 7208 2600

URL

www.framestore-cfc.com

FOUNDED

December 2001 (previously
FrameStore)

NO. OF EMPLOYEES

400+

SELECTED CREDITS

Johnnie Walker 'Tree' ad
(2004); *Layer Cake* (2004);
Troy (2004); *Thunderbirds*
(2004); Audi 'Illusions' ad
(2004); *Walking with*
Dinosaurs (2000)

SELECTED AWARDS

Emmy for Outstanding
Animated Programme,
Walking with Beasts
(2002); BAFTA for
Innovation, *Walking*
with Dinosaurs (1999);
Emmy for Outstanding
Main Title Design, *The 10th*
Kingdom (2000)



LEFT Close-ups were filmed using actors in suits, but mid-range astronaut shots were created in CG, along with the landers and auxiliary craft

>>

FEATURE

SHORTCUTS: WHEN TO TAKE THEM

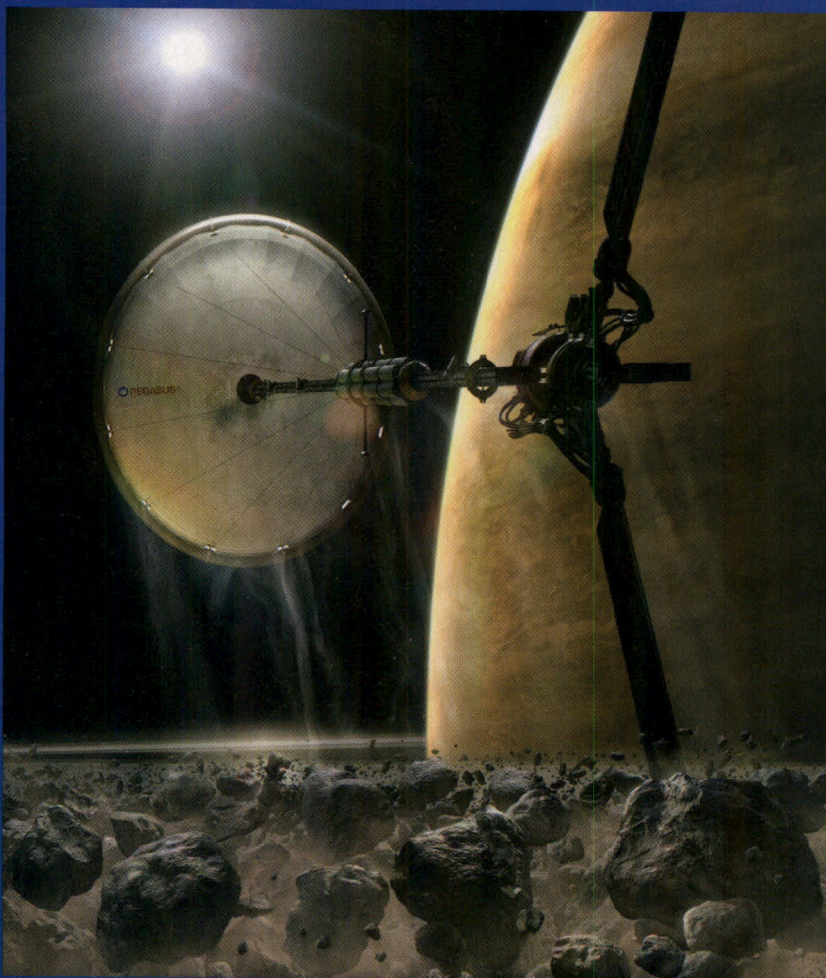
People always say it's better to think outside the box. Sometimes, however, it's better just not to bother rendering the box at all

As the project slowly progressed, the 3D team came to the conclusion that their goals were essentially unreachable. Creating full 3D environments (with texturing and rendering) wouldn't be possible in the time frame. So a vital decision was made – they'd switch to 2.5D: "Once we knew what the director wanted for each shot, it was a lot quicker to build them in 2.5D," says Byford.

The technique involved painting what you want to see from the camera's point of view, and projecting it onto fairly simple geometry, instead of building and texturing detailed objects. Even with small camera moves, the perspective holds up sufficiently to maintain the illusion. "A good example is the lo flyover," Byford explains. "The artist painted the final image of where the camera ended up, and then pulled it backwards. There was another area around the edge of the original image that was painted in, and we kept repeating that for the whole camera movement. So when you fly along

the path, it looks like one continuous image. It looks like geometry you're flying over whereas, actually, it's a sequence of still images blended into each other." As a result, Digital Paint Artist Jason Horley discovered his workload of around 12 images had grown to 350. Nevertheless, the time saved for the 3D team was invaluable. "Wherever we couldn't do something in 3D, we wouldn't – it's the most expensive process in terms of time," says Byford. "Any cheats you can do, especially in TV, should be used. It's all about shortcuts and knowing when you can take them."

Even as the project was drawing to a close, Byford was still getting to grips with these new techniques. "Some of the shots at the very end were logistical nightmares. We had 3D rocks, 2.5D rocks, matte painting in the background, up to eight layers of Pegasus that had to be rendered individually and built up, the astronauts, the lander and so on. It was a much more complex weave of elements than the dinosaur shots – a much richer CG environment."



produce creatures, and our pipeline is set up for that, so we know where we are," she says. "With *Space Odyssey*, it was completely uncharted territory. We had to do a lot of R&D at the same time as working to a schedule that sort of assumed we'd already done it a hundred times. The main difference in modelling was that, with our creatures, we used scanned data. With our landers and Pegasus, we had a few reference images, but nothing else to work from. So the design was essentially made up, or taken from books about landers."

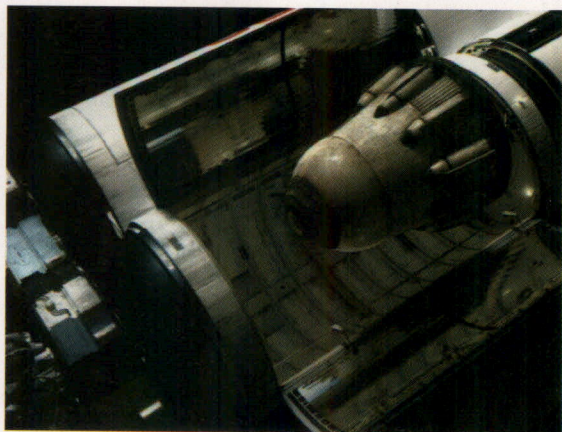
LOST IN SPACE

Pegasus had various important elements that had to be included in some form: the sleeping modules, magnetic field generators, aerobrakes and so on. The problem for Framestore CFC was not what to construct, but how – and how it would eventually look. "It was like being given an architectural concept sketch for a shopping mall or something, and being asked for a walkthrough," explains Byford. "All we had were these rough design sketches, so we had to put in all the detail, as you get so close to it [in the series]. The difficulty was getting the balance between making it look plausible, and ensuring it was a good design. We also had to fit different pieces of research together, so we'd come up with ways of doing that."

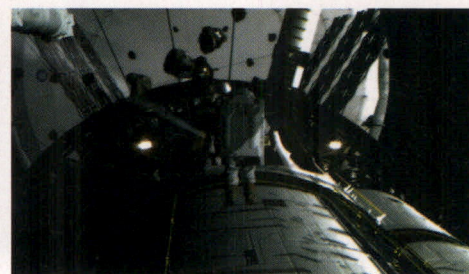
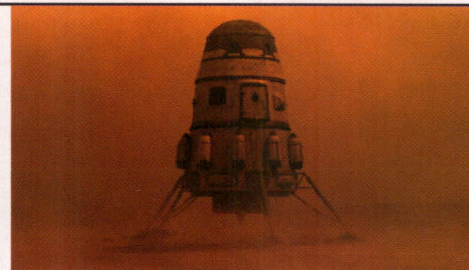
The original design, he explains, was: "a '70s sketch on the back of a napkin, which some guy from NASA had drawn as an idea." There were also some design concepts from EADS (European Aeronautic Defence and Space), but those amounted to just five sheets of A4. As Byford points out, there was a lot of filling-in to do.

Although the team had scientific advisors on hand, they undertook a lot of research on their own. "For instance, for the magnetic shield effects, we looked at the Aurora Borealis [or Northern Lights]," he says. "We'd go and do our own research, present the advisors with something, and they'd say 'yes' or 'no'. They helped direct us, but how the actual effects were done was down to us."

Pegasus was impossible to render in its entirety, running into millions and millions of polygons – Byford isn't even sure how big the final model was. "It was a mammoth build,



#027



so we had to break it up into four pieces, and each one had to be rendered separately. We were right on the upper limit of what *mental ray* could render. Plus, there were three levels of detail for each one, so they had to be built as well."

ONE SMALL STEP?

There was another problem, aside from the challenge of creating so many models. Traditionally, Framestore CFC had used Softimage software, along with a few in-house tools. But because of *Odyssey's* specific requirements, it was decided at the outset to switch to *Maya* – a program none of the team were familiar with.

As a result, much of the time was spent learning *Maya* rather than investing in new R&D. "It was mostly out-of-the-box *Maya* stuff, although we did have a few in-house tools to speed things up," says Byford. "It was *Maya* and *mental ray*, and we used particles and fluids a bit. Most of that time was spent learning how to get *Maya* fluids to do exactly what was needed for the specific shots."

Particle systems were used most notably for the 'dust devil' whirlwinds on Mars, inconveniencing our intrepid heroes. Technical Director Jamie Isles created these using volumetric particles, layering various effects for realism.



"SPACE ODYSSEY WAS COMPLETELY UNCHARTED TERRITORY. WE HAD A LOT OF R&D AT THE SAME TIME AS WORKING TO A SCHEDULE THAT SORT OF ASSUMED WE'D ALREADY DONE IT A HUNDRED TIMES." SARAH TOSH, SENIOR MODELLER

Maya's integration with *mental ray* was important for *Odyssey*. "The lighting could be very stark in space, and on the planets, so we wanted to use the Final Gathering features in *mental ray*," explains Byford. "There was also the particle work and the possibility of doing fluids work, so *Maya* just seemed like the most sensible solution."

Naturally, the change wasn't quite as seamless as they'd hoped. "The *mental ray* implementation in *Maya* is quite different to *Softimage|XSI*, so we had a rather exciting learning curve on that one," says Byford.

SPLASH DOWN

"If you broke it down individually into each shot, or each technique and area, it wasn't daunting," says Byford. "It was only when you put it all together and realised just how much we had to do – that was the scary thing." Much to the team's relief, *Odyssey* was completed on schedule. Now, the techniques they learned the hard way are being put to use on the new *Walking with Dinosaurs* series.

"It was an immense team effort and it wouldn't have worked without every single member working their fingers to the bone," says Tosh. "I wouldn't necessarily want to repeat it in the same way, but I'm incredibly proud of the way it turned out." ■

VOYAGE TO THE PLANETS

www.framestore-cfc.com/television/spaceodyssey/index.html

Space Odyssey: Voyage to the Planets aired on BBC1 in November 2004, and is due to be shown on the Discovery Channel this June. For more info go to www.bbc.co.uk

ABOVE While the 1.3km long Pegasus spaceship proved the most time-consuming to create, there were several lander craft and planetary probes to be designed too

FAR LEFT Many of Framestore CFC's design problems involved how to connect various aspects of the ships convincingly, yet artistically

LEFT Cosmic phenomena were modelled and animated in *Maya* – the studio's first use of the package – with extensive use of fluids and particles

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RISING STARS

TEN STUDIOS TO WATCH IN 2005



>> ACTION
SYNTHESE.....p32



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PICTURES.....p33



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DIMENSION.....p34



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EFFECTS.....p36



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>> STUDIO
AKA.....p41

In 2002, we produced our original list of CG studios to keep an eye on. This year, we're updating that selection. From independent shorts to long-form animation, these are the ten up-and-coming studios most likely to shape the industry in 2005

BY MARK RAMSHAW

What marks a studio out as 'one to watch'? The quality of its clients? The number of A-list projects it works on? The speed at which it's expanding? Or something less

definable, but perhaps more important: that elusive 'X factor'?

We first posed this question back in issue 34, with our inaugural list of companies to follow. To select studios of similar quality this year, we began by polling key players in the 3D industry, including both software developers and studios such as DreamWorks and The Mill. From our original long list of 43, we then spent weeks examining reels and client lists, viewing and reviewing work, debating and arguing.

The ten facilities we eventually selected form a fascinating snapshot of current trends in the 3D industry: in the case of France's Action Synthese and Canada's C.O.R.E. Digital Pictures, the increasing number of full-length CG animations being produced outside the major Hollywood studios. In the field of visual effects, our choices reflect the way in which a particular project can come to shape a particular geographical territory. It used to be said, only half jokingly, that everyone in the UK CG industry had worked on *Lost in Space*; the same thing could now be said of Australasia and *Lord of the Rings*, or North America and *Sky Captain and the World of Tomorrow*.

Of the latter group, Pixel Liberation Front occupies an intriguing dual role: not only did the studio work on *Sky Captain*, but on a number of key projects in the burgeoning

pre-viz and new 'post-viz' markets. Over in broadcast, the Emmy Award-winning Eden FX and Digital Dimension have used their TV work as a springboard into film, while Psyop and The Embassy Visual Effects have produced some of the most striking – and most talked about – new short-form work.

Our judging criteria were necessarily flexible. While we excluded established players like ILM and Framestore CFC, our choices – by and large, companies between two and four years old – include both smaller studios producing work of exceptional quality, and medium-sized facilities making a leap into the major league. Our criteria were also necessarily limited: while there were many game developers and architectural agencies whose work would certainly have merited inclusion, we felt that we simply couldn't cover all three markets in a meaningful way.

Sadly, space prevented us from including certain facilities. We omitted Production I.G, for example, on the grounds that we had featured its work extensively in issue 59. Vanguard Animation, responsible for the UK's own first full-length 3D movie, will be featured in an upcoming issue.

And, as ever, personal taste played its part. Our final choice, studio aka, made the shortlist not simply for its commercial work, but for its short films, including the BAFTA Award-winning *Jojo in the Stars*. Together, these shorts form some of the most unusual, inventive and, above all, moving work we've seen all year: a taste of the X factor, if you will. To find out why we thought so, read on...

#031

MAIN IMAGE

The BAFTA Award-winning
JoJo in the Stars,
produced by studio aka.
The London-based facility
is just one of our ten
recommendations for
CG studios to watch over
the coming year

To have your say on this year's shortlist,
post your comments online at:
<http://forum.3dworldmag.com>

FEATURE

Action Synthèse

This French studio aims to establish France as a new base for CG animated feature production. First stop: The Magic Roundabout

FACT FILE

COMPANY

Action Synthèse

LOCATION

111 Route De La Valentine,
Marseille 13011, France

CONTACT

+33 0 1 47 70 45 20

WEB

www.films-action.com

FOUNDED

2000

NO. OF EMPLOYEES

40

SELECTED CREDITS

The Magic Roundabout
(2005), *Antebios* (2001),
Premier Domicile Connu
(1999)

SELECTED AWARDS

Imagina Award, *Antebios*
(2001); Imagina Award,
Premier Domicile Connu
(2000); Annecy Best Film
Award, *Premier Domicile*
Connu (1999)

Formed just over three years ago and working on its first feature production, Action Synthèse is already making headlines. But then it's not every day that a new studio resurrects a TV programme as well loved as

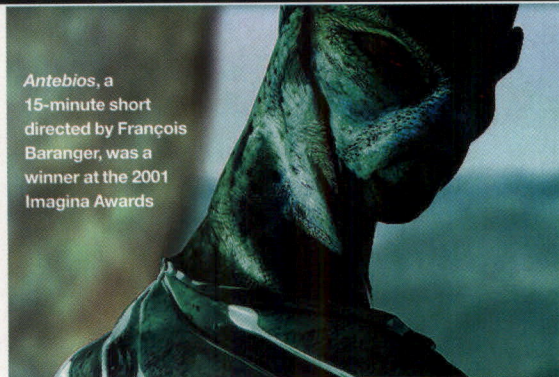
The Magic Roundabout. In fact the Marseilles-based studio is part of the Films Action group, itself a subsidiary of a long established French film-related company, Groupe Action.

Films Action's aim is to develop and produce new film projects, while also fostering new talent: "That's why we've worked in partnership with the Imagina festival for the last four years, organising Imagina's competitions, including the Action New Talents Award," explains Films Action founder Laurent Rodon. "Action Synthèse was set up to help make these productions a reality, specifically by creating CG animated feature films."

Following the production of two Imagina award-winning shorts (*Premier Domicile Connu* and *Antebios*), Action Synthèse has been focused on the production of *The Magic Roundabout*, a 17 million Euro, 75 minute all-CG movie due to hit cinemas early this year.

"The first thing we did when we started, was try to convince the financiers of the movie's viability back when the company was formed in 2000," says Rodon who, in his role as producer, also worked hard to obtain the rights from Martine Danot – the widow of the original show's creator, Serge Danot: "Because the original programmes were created with

Antebios, a
15-minute short
directed by François
Baranger, was a
winner at the 2001
Imagina Awards



3D puppets we were able to explain to her that, by using 3D technology, we would be able to respect the original concept and enhance it."

The key challenge for the filmmakers was to build a studio able to produce work of international quality: "It was more or less impossible to find all the necessary skills locally, because there have been no major 3D animated movie projects in Europe to date. Axis was the only one, and that was disastrous in terms of production, and also a commercial flop. But I think with *The Magic Roundabout* we've finally proven that Europe can compete."

"THIS IS NOT JUST A MOVIE, IT'S A STRONG ARTISTIC COLLABORATION BETWEEN FRANCE AND THE UK"

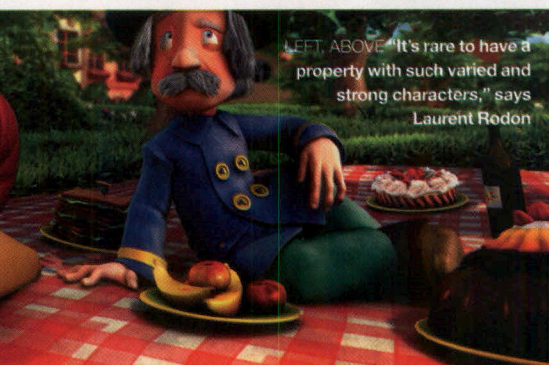
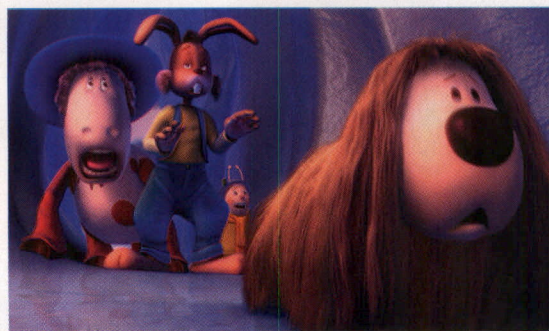
Laurent Rodon, PRODUCER, THE MAGIC ROUNDABOUT

Production began using *3ds max*, before a decision was taken to move over to *XSI*. In fact the studio has now formed a close partnership with Softimage, even building an R&D department led by Lead Developer Dave Lajoie, Senior Developer Dominique Laflamme and R&D Director Marc Stevens. Hewlett Packard is another ally, chosen for its experience working with PDI/DreamWorks on *Shrek*. The studio is powered by 100 HP workstations, and a render farm of 400 processors.

Action Synthèse has also established close ties with French animation schools like CFG Gobelines and Sup Infocom Arles for help sourcing talent, as well as bringing in a number of old hands for the production, including Co-Director Franck Passingham, Art Director Lilian Fuentesfria, Technical Director Matt Dow, and Lead Layout Artist Sylvianne Rey.

With the film due for release in April 2005, development is already underway on a new all-CG TV series. Rodon reveals that they plan to produce 52 episodes of 13 minutes each. A sequel to the first movie will then launch in 2007.

In the meantime the studio is already gearing up to its next artistic and technological challenge, a new version of *The Wizard Of Oz*, to be directed by the legendary John Boorman. The method used to bring the lead character to life promises to be nothing less than an industry milestone. "We've acquired the rights from the Judy Garland estate to use her face and voice," reveals Rodon. "The character of Dorothy will be a fully CG incarnation of Garland aged 12."



LEFT, ABOVE "It's rare to have a property with such varied and strong characters," says Laurent Rodon

#033

C.O.R.E. Digital Pictures

Founded by a Star Trek veteran, C.O.R.E. is following its success in visual effects and cartoons with a move into full feature production

Now Canada's largest employer of CG animators, C.O.R.E. owes its very existence to a long forgotten sci-fi TV series created by the one and only William Shatner. At the time, Bob Munroe and several colleagues were using their experience in software development to secure work in the commercial market. When Munroe hooked up with Shatner to provide effects work for his new show, the actor was so impressed he chose to team up with Munroe, John Mariella and Kyle Menzies to form a new Toronto-based studio.

"The very first thing we did as C.O.R.E. was the cyberspace upload sequence for *Johnny Mnemonic*," recalls Visual Effects Director Bret Culp. At the time, the studio consisted of just six people in a small room, expanding to a team of 30 within a couple of years. "We stayed around that size for a while, before moving into a new facility, figuring it would take five years to fill. We did it in six months."

Culp says the studio has benefited from the large talent pool created by the area's schools, along with proximity to software vendors such as Alias and Discreet. "Side Effects is actually just a couple of blocks away," he adds. "We've built up an amazing relationship with them, and are now even using Houdini for character animation."

"For the first few years, we focused strictly on visual effects for film and television, but then came the animated series *Angela Anaconda*," adds Doug Masters, VP of Operations at C.O.R.E. "That became really successful, showing we could create 3D cartoon animation very cost effectively. From there, the cartoon work has evolved into a bigger concern, with an established branded division, C.O.R.E. Toons."

While the movie effects work has also evolved, with ever-higher profile projects and increasingly complex shots, Culp points out that the studio does try to resist the calls to help out with features late in their schedule. "We're good friends with Guillermo Del Toro, so we did it on *Blade 2*, turning it around in three months when other studios had been

FACT FILE

COMPANY

C.O.R.E.

LOCATION

488 Wellington Street West,
Suite 600, Toronto, Ontario,
Canada M5V 1E3

CONTACT

+1 0 416 599 2673

WEB

www.coredp.com

FOUNDED

1994

NO. OF EMPLOYEES

400

SELECTED CREDITS

Franny's Feet (2004),
Resident Evil: Apocalypse
(2004), *Blade II* (2002), *X-Men*
(2001), *Dr Doolittle* (2001),
Nutty Professor II: The
Klumps (2000), *Angela*
Anaconda (1999), *Mimic*
(1998), *Cube* (1997), *Fly Away*
Home (1996), *Johnny*
Mnemonic (1995)

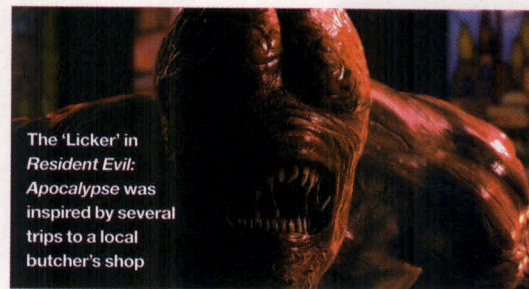
SELECTED AWARDS

Gemini Award for *Angela*
Anaconda (2001), Emmy
Nomination for *Angela*
Anaconda (2001),
Fantasporto Award for *Cube*
(1999), International Monitor
Award for *TekWar* (1995)

A climactic explosion in *Resident Evil: Apocalypse* features a particle dust cloud, sphere explosion, and a number of window-shattering effects



The 'Licker' in *Resident Evil: Apocalypse* was inspired by several trips to a local butcher's shop



working on the movie for a year. But we had to say no with *Hellboy*. We just wouldn't have had enough time to do the work justice."

"90 per cent of companies fall into the same trap, with people sleeping on couches and not seeing their families until a project is complete," says Masters. "That sort of working situation can't last, and it's something we strive to avoid."

Now C.O.R.E. Digital Pictures and C.O.R.E. Toons have been augmented by C.O.R.E. Feature Animation. "Following the success with the Toons division, Bob Munroe, our president, wanted to take it to another level, to bring our cartoon talent and our visual effects expertise together to produce an animated feature," explains Culp. "We were able

"CANADA IS A PLACE WITH A CAN-DO MENTALITY. THAT SENSE OF ENTERPRISE HAS GIVEN US A REAL ADVANTAGE, ENABLING US TO SCALE UP YET RETAIN A HUNGER FOR FIGURING OUT THE MOST EFFICIENT WAY TO DO THINGS" Doug Masters, C.O.R.E.

to bring in Steve 'Spaz' Williams, who directed the *Carl And Ray* commercials for Blockbuster. With his concept and our pipeline, we got the go-ahead." This move into full feature production has necessitated a rapid growth, from around 100 staff to 400. "Anybody can hire a few hundred artists, but you're not going to get the work done without solid production management," says Masters.

"We fully intend to continue with service work but, right now, anyone that handles film work is at the beck and call of the industry," says Culp. "We want to take more control of our destiny, and that means owning our own projects."

>>



LEFT

A still from animated show *Franny's Feet*, created in *Maya*. "We tend to view C.O.R.E. Toons and C.O.R.E. Digital Pictures under one umbrella," says Animation Director Aaron Linton

FEATURE

Digital Dimension

From producing titles for sports programmes, Digital Dimension has embraced movie effects and is set to move into content creation

FACT FILE

COMPANY

Digital Dimension

LOCATION

4100 W. Burbank Blvd., suite 200, Burbank, CA 91505

CONTACT

+1 0 818 845 2866

WEB

www.digitaldimension.com

FOUNDED

1996

NO. OF EMPLOYEES

70

SELECTED CREDITS

Blade: Trinity (2004), *Son Of The Mask* (2004), *Mr And Mrs Smith* (2004), *Exorcist: The Beginning* (2004), *Scooby Doo 2: Monsters Unleashed* (2004), *Final Destination 2* (2003), *Bulletproof Monk* (2003), *Last Samurai* (2003), *Elf* (2003), *Reign Of Fire* (2002), *Alias* (2004), *Lost* (2004), *Superbowl XXXVI* (2002), *Driven* (2001), *NASCAR* (2001), *Superbowl XXXIII* (1999), *NFL Fox* (1998)

SELECTED AWARDS

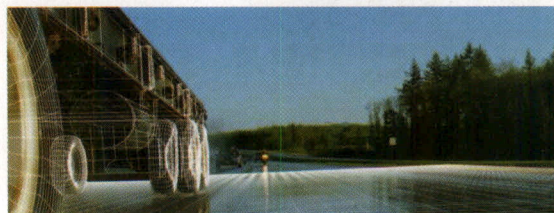
VES Outstanding Supporting Visual Effects Award, *The Last Samurai* (2004); Aurora Platinum Best Of Show Award, *Driven* (2002)

Formed in 1996 by Ben Girard, Digital Dimension first made a name for itself as the creator of TV show stings and movie trailers, with the Fox Sports network one of its key customers. Girard was joined by Jerome

Morin in 1999, and a move to pursue longform visual effects work began: "It was very difficult at first, although I'd been a music producer for many years, working with people like John Williams, James Horner and Danny Elfman, so knowing people in that business helped raise our profile," says Morin. "We got a couple of good breaks and then, in 2001, Director Renny Harlin and Visual Effects Supervisor Brian Jennings contacted us about working on *Driven*. We'd just delivered a sequence for NASCAR on Fox that featured close-to-photoreal race cars, and that helped them make the decision to award us over 60 shots on the movie."

Since then the studio has provided shots for movies as diverse as *Elf*, *Final Destination 2* and *The Last Samurai*, and has grown to encompass two studios – one employing around 40 staff in Los Angeles, and another with 30 in Montreal. While the studio has continued to take on TV show intro jobs, it was only after it became better established as a movie effects facility that it began contributing visual effects shots for broadcast.

Morin and Girard's main aim, though, is to produce TV content of their own. Talks are currently in discussions with a TV network to produce an animated cartoon series, and – in an unusual move for a dedicated CG company – development is also underway for a live-action TV show that will rely

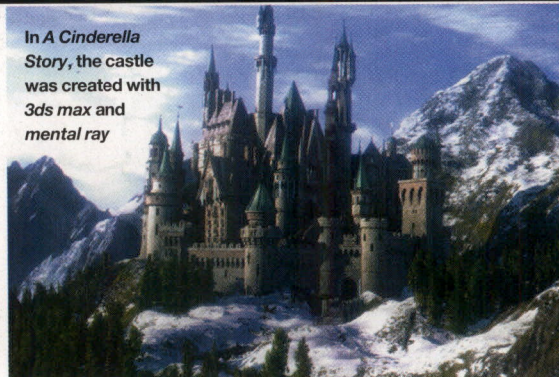


BELOW & RIGHT

The effects are impossible to spot in *Final Destination 2*.

"One of the executives at New Line asked what we did," says Jerome Morin

In *A Cinderella Story*, the castle was created with 3ds max and mental ray



heavily on CG visual effects. "We'll be partially funding these projects, so that we have ownership," says Morin. "We're now also in the beginnings of a move to create 3D attraction rides, working with Gary Goddard, who's very well known and experienced in that area."

In the meantime, there's a 90-second titles sequence for the 2005 Superbowl in the works – "800 million people will get to see it," says Morin, excited – plus another three major movies featuring extensive effects work from Digital Dimension soon to hit cinemas. First up is *Blade: Trinity*, for which the studio

"WE'RE AT THE EARLY STAGES OF TALKS TO MAKE OUR OWN CG FEATURES. OUR GOAL IS TO CREATE OUR OWN CONTENT"

Jerome Morin, JOINT CEO OF DIGITAL DIMENSION

handled all the vampire 'ashing' sequences. Then comes a number of rather wacky, and very prominent, effects for the cartoonish live-action comedy sequel *Son Of The Mask*. And the Montreal division is currently wrapping work on *Racing Stripes*, adding CG facial and mouth animations to live animals on around 65 shots.

The desire for control over content is also set to take Digital Dimension into fully animated feature production: "We're in the early stages of talks with a renowned director right now, and have a number of people ready to join our Montreal facility as soon as the deal is finalised," says Morin.



The battle scenes in *The Last Samurai* are given extra impact through Digital Dimension's photoreal weapon effects



#035

Eden FX

This studio has all but cornered the market in effects for spy and sci-fi TV shows, and it's now set its sights on the silver screen too

The story of how John Gross came to co-found Eden FX begins back in 1992, when he headed to Hollywood for a week to help set up the CG crew for the TV show *seaQuest DSV* at the behest of NewTek.

He ended up staying on full time as the team evolved into Amblin Imaging, working on *DSV* and then *Star Trek: Voyager*. However, it was when studio co-owner Universal pulled the plug that things got really interesting.

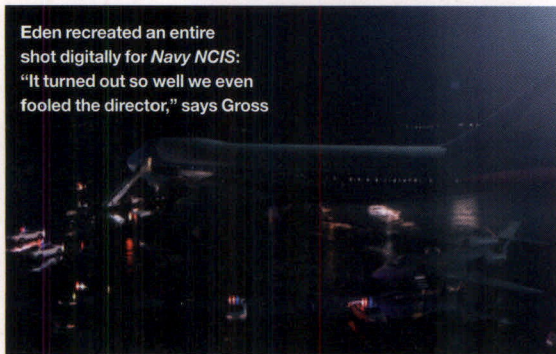
"After a lot of thought, I asked another artist from Amblin to form Digital Muse with me," says Gross. "Because of my connection with the *Star Trek* people, we had an instant client. We were able to buy all Amblin's workstations, so we had the equipment we needed to continue working."

Digital Muse ran for four years, but a decision to raise funds by selling a portion of the company to an internet outfit in January 2000 proved disastrous. "I decided to leave and start again," says Gross. "I took three weeks off and then Digital Magic founder Mark Miller and I formed Eden FX. The clients agreed to come with me and within a few weeks all the artists still at Digital Muse quit to come and work for Eden. Digital Muse closed a week later."

"We were fortunate in that we were able to get Eden up and running in as little as two weeks during the summer break from television," says Gross. "Right out of the gate, we were working on *Star Trek: Voyager* and a show called *Seven Days*. The team of artists had already been working on complex 3D sequences at Digital Muse, so we were able to jump right in with no real interruption."

Today, Eden FX is a four-year-old studio with the experience and client relations of an eight-year-old one. "Obviously *Star Trek: Voyager* and *Enterprise* have been beneficial," says Gross. "We also do a lot of work for *JAG* and *NCIS*. In fact, we've done so much for them that we've built up a library of vehicles that we can use over and over again for them in an effort to help keep costs down."

Eden recreated an entire shot digitally for *Navy NCIS*: "It turned out so well we even fooled the director," says Gross



FACT FILE

COMPANY

Eden FX

LOCATION

1438 N. Gower St., Box 19, Building 50, Hollywood, CA 90028

CONTACT

+1 0 323 993 7050

WEB

www.edenfx.com

FOUNDED

2000

NO. OF EMPLOYEES

24

SELECTED CREDITS

Hellboy (2004), *Six Feet Under* (2004), *Alias* (2003), *Navy NCIS: Naval Criminal Investigative Service* (2003), *Star Trek: Enterprise* (2001), *Star Trek: Voyager* (2000), *Seven Days* (2000)

SELECTED AWARDS

Emmy for Outstanding Visual Effects, *Star Trek: Enterprise* (2004); Emmy for Outstanding Visual Effects, *Star Trek: Enterprise* (2002)



2004 saw the studio also take on its first major movie effects job, working on high-profile fantasy blockbuster *Hellboy*. "That came up to through the relationship between our producer, Steve Pugh, who had worked with the movie's VFX Supervisor at Foundation Imaging," explains Gross.

Eden FX was originally hired for 75 shots, taking great care to only accept work that could comfortably be accomplished

"OUR BODY OF WORK OVER THE YEARS IN BOTH FILM AND TELEVISION SHOWCASES THAT WE CAN DO ANYTHING"

John Gross, CO-FOUNDER, EDEN FX

TOP RIGHT

"The work we did for *Hellboy* was varied," says Eden FX's John Gross. "It included environment additions like snow and skies, and animation for *Hellboy's* tail"

RIGHT

Eden FX creates a range of effects for *Star Trek: Enterprise*. "They've been pushing the envelope more and more, requiring all-CG characters, digital actors and an increasing amount of matte paintings from us," says Gross

to a high quality using its existing pipeline. In the end, Gross says the quality of the work and the turnaround times meant they were asked to triple their workload, delivering 208 shots by the time post-production wrapped. "We did need to expand our artist base a bit and bring in some additional equipment for rendering, but because the company was founded on the ability to ramp up and down as needed, it was a pretty simple task," he says.

Gross says the studio has been diligently building on its success with *Hellboy*, winning bids for two other features so far. "We also continue to push more into the broadcast realm with different projects and clients."

Ultimately, he explains, the studio is just as adept at handling film work as it is TV projects. "All the broadcast work we do at the moment is at HD resolution, so the line has really become blurred between film and television," he explains. "The main difference for us now is just the turnaround time."

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FEATURE

The Embassy Visual Effects

Creating those famous disco dancing cars and footballing robotic crabs is all in a day's work for this fast-rising Canadian studio

FACT FILE

COMPANY

The Embassy Visual Effects

LOCATION

4th Floor, 177 West 7th Avenue, Vancouver, BC, V5Y 1L8

CONTACT

+1 0 604 696 6862

WEB

www.theembassyvfx.com

FOUNDED

2003

NO. OF EMPLOYEES

12

SELECTED CREDITS

Citroen 'Transformer' (2004), Nike 'Evolution' (2004), Nike 'Crabs' (2004), Popular Science '100th Anniversary Of Aviation' (2004), *Kingdom Hospital* (2003), *Stargate SG-1* (2003)

There are many studios bringing movie quality photorealism to broadcast work, but The Embassy Visual Effects is one of the few 'boutique' sized effects facilities to enjoy success in this area. Formed just two years

(ago and with only ten staff), it has already created stunning ad spots for clients such as Nike and Citroen, as well as providing extensive effects work for TV shows.

The core Embassy team first worked together at Rainmaker in Vancouver. "I left in 2000 and went to work at another studio for a while," says Embassy's president Winston Helgason. "Then Neill Blomkamp, Stephen Pepper, Jim Hebb, and I started Embassy Visual Effects in 2002, with Simon van

"AT A LARGER COMPANY, THERE ARE MULTIPLE LEVELS OF MANAGEMENT; HERE, I STILL GET TO ANIMATE"

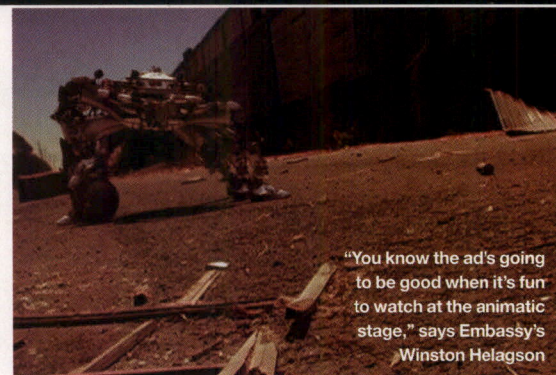
Winston Helgason, PRESIDENT OF EMBASSY VISUAL EFFECTS

de Lagemaat joining shortly after. Trevor Cawood, who'd left Rainmaker to work at ESC on the *Matrix* films, also came back up to Vancouver to work with us."

While the team's backgrounds lay in digital effects work, Helgason says that they'd always been very hands-on when dealing with clients, making it a relatively easy transition to running their own studio: "Although Neill comes from a visual effects background, he's also been directing for a few years now."

The team's first assignment was to produce a music video for the Canadian pop artist, Bif Naked. "It was basically a two minute long all-CG car race," explains Helgason. "Then we did a spot for Amstel, for the UEFA Cup, followed by some effects work on *Stargate SG-1* and *Kingdom Hospital*."

"We generally use *LightWave*, but sometimes work with *Maya* and *Beaver Project*," says Helgason. "But if you've been using *LightWave* for years, you can get around any animation issue"



"You know the ad's going to be good when it's fun to watch at the animatic stage," says Embassy's Winston Helgason

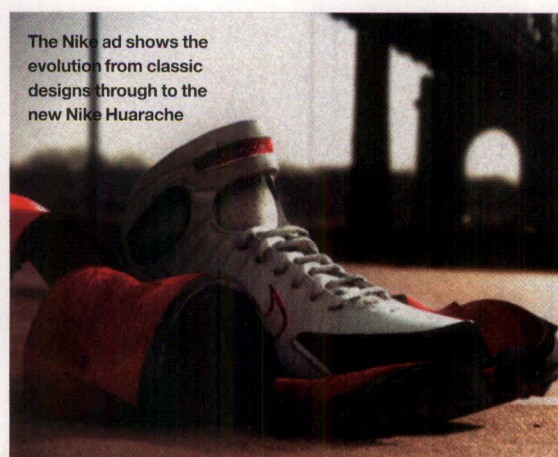
About 150 effects shots were completed for *Kingdom Hospital*, all produced at high definition. Although the work managed to wangle an Emmy nomination, Helgason admits to preferring ad work: "You get to focus on something for a month and a half and then move on. It's just a more creative way to work."

Although the studio is based in Vancouver, the lack of budgets for Canada-specific ads means most of its clients are either European or American. For Helgason, location has never really been an issue. "It's just a two and a half hour flight to California: Wieden+Kennedy is just in Portland."

Despite the forays into broadcast effects and even the creation of a cartoonish ad spot, it's the in-your-face, photoreal creations that The Embassy's known for. "I guess that's our forte, and it gets noticed most," says Helgason.

So what does The Embassy's team do right that so many others striving for photorealism never quite manage? "I guess it's just that we have people with a really good eye for what looks right and what doesn't. A lot of it just comes down to the fact that we've been doing this a for long time."

The movie industry has, not surprisingly, shown an interest in utilising Embassy's talents. Helgason says that, although the team is keen, there's something of a conflict of interest. "We've spoken to various film people, but have never been able to come to an agreement. They always want to hand us a ton of shots, whereas we'd rather just work on a few cool ones. We'll continue to discuss the possibility, but for now we pretty much want to stay on the current path, maybe hiring a few more people, but not doing any major expansions. It's just nice doing the commercials work right now." Turn to page 22 for more on Embassy's dancing car ad.



The Nike ad shows the evolution from classic designs through to the new Nike Huarache

#037

Luma Pictures

Once best known for its photoreal 3D mattes, Luma has evolved into a high-profile vendor for complex effects and creature work

There are many studio execs with colourful histories in our industry, but Luma Pictures Co-Founder Payam Shohadai must surely be the only one to have made the leap from audio to video. 12 years ago, he was running his own successful audio production facility, Moon Against Man, when an interest in the emerging CG scene inspired him to expand the company's remit. He invested in SGI equipment, and began teaching himself to use it, when an artist friend he'd hired to use the technology left soon after. Soon the studio was providing modelling and texturing services, and by 1996 this replaced the music side of the business altogether: "We were working on a lot of random stuff," Shohadai recalls. "[We were] doing modelling jobs for other facilities, and working on projects such as Burger King commercials and for Henson's Creature Shop, who were contemplating moving their Muppets into the digital world at the time."

"WE CARE ABOUT EACH PROJECT RATHER THAN TRYING TO 'NICKEL-AND-DIME' THE CLIENT. THEIR CONCERNS ARE OUR CONCERNS" Payam Shohadai, LUMA PICTURES

The switch to Luma Pictures came when Shohadai partnered with Jonathan Betuel, a veteran producer and director who also scripted *The Last Starfighter*. "Jonathan has many friends in the industry, so that's contributed to the direction we've taken, as has word-of-mouth between film studios. MGM was a client, which led to work for Lakeshore. Then Screen Gems and Miramax got to know about us."

Luma's first job involved 3D matte work on around 100 shots for *The Human Stain*. When the movie got pushed back a year, the filmmakers decided to add a new scene.

FACT FILE

COMPANY

Luma Pictures

LOCATION

321 Santa Monica Boulevard,
Third Floor, Santa Monica,
CA, 96401, USA

CONTACT

+1 0 310 888 8378

WEB

www.luma-pictures.com

FOUNDED

2002

NO. OF EMPLOYEES

40

SELECTED CREDITS

The Cave (2005), *Sky Captain And The World Of Tomorrow* (2004), *The Human Stain* (2003), *Charlie's Angels: Full Throttle* (2003), *Bad Santa* (2003), *Bulletproof Monk* (2003), *Windtalkers* (2002), *Rollerball* (2002), *Mr Deeds* (2002), *Hart's War* (2002), *Barbershop* (2002)

BELOW

"When we began working on *Sky Captain*, the outsourcing pipeline hadn't been developed. There were managerial changes, and we also had to double in size," says Shohadai



ABOVE

In addition to 3D matte work, Luma provided some creature effects for *Underworld*. "We completed about 150 shots, with Framestore CFC handling the 'cherry' creature work," says Luma's Payam Shohadai. "We're doing all the effects for the sequels. This time we'll get to work on large battle sequences with CG werewolves and vampires"

"The house where they filmed was no longer available, so they came back to us to see whether the set could be built in 3D," says Shohadai. "The results showed we could produce something realistic enough to work in a dramatic film without pulling the viewer out of the story." This led to further 3D mattes and set extension work – the studio's expertise in this niche effectively painting it into a corner: "It did become a thorn in our side for a while. Our work was on a par in terms of photorealism with other studios, but it was totally invisible." Some werewolf transformation effects for *Underworld* helped the studio broaden its portfolio, and now with its contribution to *Sky Captain And The World Of Tomorrow* it's fully made the leap into no-holds-barred effects work: "We're now doing more character and creature animation, a luxury few facilities get to enjoy," says Shohadai.

Next year will see the studio move onto even larger projects, handling all the effects for high-concept blockbuster horror properties like *The Cave*, and *Underworld 2*: "We're working on *The Cave* right now, animating the monsters. They're really exciting creatures to work on – they fly, swim and have a very unusual way of moving. We're producing around 250 shots, although the studio likes our work so much, it's pushing for more CG in place of practical shots, using a creature suit."

Shohadai says Luma is now at a crossroads, where expanding workloads and overlapping projects will necessitate further growth – at the very least doubling in size over the next year: "We've no desire to become as large as the likes of Digital Domain, though. I want the company to feel like a family. And at the moment we hire staff for long-term positions, which gets harder to do as studios expand." The studio is already moving towards content creation, with the ultimate goal to have the visual effects team handle the work for Luma's own movies. "I don't want to be delusional, though, so we kind of live week-to-week. We're successful right now and will be for the foreseeable future, but don't want to get too cocky."

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FEATURE

Pixel Liberation Front

The world's most famous pre-viz studio continues to push the boundaries, while also making its mark as a full-service CG facility

FACT FILE

COMPANY

Pixel Liberation Front

LOCATION

1316 1/2 Abbot Kinney Blvd,
Venice, CA 90291

CONTACT

+1 0 310 396 9854

WEB

www.thefront.com

FOUNDED

1994/6

NO. OF EMPLOYEES

10

SELECTED CREDITS

Sky Captain And The World Of Tomorrow (2004), *Blade: Trinity* (2004), *I, Robot* (2004), *The Bourne Supremacy* (2004), *Van Helsing* (2004), *Matrix Revolutions* (2003), *The Last Samurai* (2003), *The Matrix Reloaded* (2003), *The Ring* (2002), *Panic Room* (2002), *Fight Club* (1999), *Godzilla* (1998), *Starship Troopers* (1997)

ABOVE RIGHT

"The team for *Sky Captain* was the same as the one on our pre-viz projects," says Colin Green, the founder of Pixel Liberation Front. "We made use of the same 3D solution as usual: XSI with mental ray"

BELOW

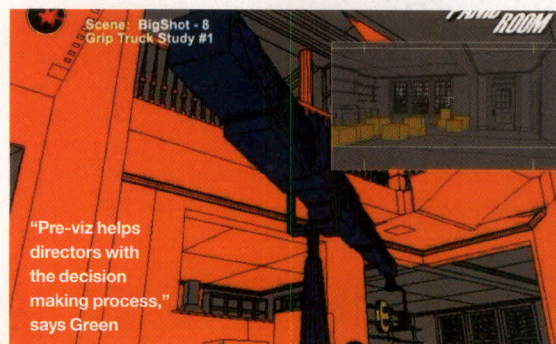
"With *Sky Captain* we completed 90 shots for the 'Flying Fortress' sequence, including *Sky Captain's* P-40 Warhawk," says Green

Pixel Liberation Front may not have invented CG previsualisation, but the Californian outfit has certainly been responsible for its popularisation. Founded nine years ago, and now regarded as the industry's leading

pre-viz house, it's worked on projects as diverse as *Fight Club*, *Godzilla* and *The Bourne Supremacy*. But the decision to specialise in pre-viz was based largely on an instinct for survival: "Our initial goal was to be involved with high-end projects, but the costs were prohibitive, and we knew that a small studio wouldn't stand a chance as a full-service vendor," he says. "By offering pre-viz services, we were able to get involved with movies such as *Starship Troopers*. In the long term, it definitely paid off."

Because pre-viz was something of an unknown quantity, resistance was sometimes encountered by other studios involved on a project. It was also often necessary to sell the idea to the filmmakers: "We'd call up the person handling a project, and try to explain the benefits of pre-viz," says Green. "Now they call us." 'Post-viz' is another service offered by Pixel Liberation Front. "This is used after the shoot to figure out what's going to be done with each shot," explains Green. "There are often questions about how the sequence will be put together. Post-viz takes the shots and adds low-detail geometry to make a video-quality temp version, so the story can be cut together, the frames can be worked out, and the vendors can cost the job. We always push for its use, and have provided it for almost every movie we've worked on lately."

The very nature of pre-viz is also changing. At the outset, its role was as a tool to help calculate the logistics involved



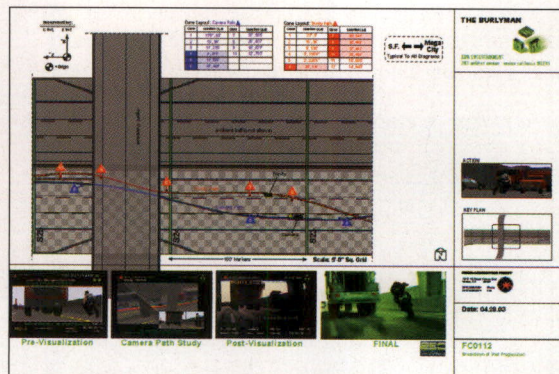
creating the final effects. "We'd do the absolute minimum of the look and feel, just to show the director what was happening," say Green. "Now people expect a highly detailed exercise in storytelling, with editing, sound effects, and eye candy." This gives the filmmakers a way of evaluating the effects in a more cinematic context. Rather than using pre-viz solely to determine how the effects work should be done,

"FOR PRE-VIZ, PEOPLE NOW EXPECT AN EXERCISE IN STORYTELLING, WITH EDITING, SOUND EFFECTS AND EYE CANDY"

Colin Green, FOUNDER, PIXEL LIBERATION FRONT

they can now use it to establish how the movie 'feels' and the tone of an effects-based sequence.

Perhaps the most significant change at the studio has been a move into effects work. In the past, the studio provided CG services for ads and music videos, but it's only with the contribution of 90 shots to *Sky Captain And The World Of Tomorrow* that it's turned into a full-blown movie effects facility: "Having a full CG pipeline in place puts us on a level playing field, but the perception of the studio isn't drastically different," says Green. "It'll take a few more projects of that size, although we're already getting started on that."



ABOVE "The *Matrix* sequels were a watershed event for us," says Green. "They gave us tons of interesting things to work on, and because the project lasted for two years, we really had time to cement the skills of our storytelling pre-viz department"



#039

Psyop

On a mission to 'persuade, change and influence', Psyop creates ads that blend 3D with hand art, live action and motion capture

There can't be many design studios with their own theme song on their website, never mind one accompanied by a music video dedicated to the power of advertising. But then New York's Psyop team are more attuned to the age of post-modern branding than most: "Eban Mears, Todd Meuller and I had all been working at MTV," explains Founding Partner, Marco Spier. "We had access to all these great 3D tools, but didn't think the company was using them in the way they ought to. We left and formed our own studio, hooking up with Marie Hyon (who'd been Artistic Director at Nickelodeon) and Kylie Matulick (who was working at Lee Hunt Associates)."

Opening in September 2000, they initially rented an empty bar in New York's East Village: "The five of us would sit at the bar itself with our laptops," says Spier. "We worked like that

"WE WANTED TO TAKE 3D SOFTWARE OUT OF THE TECHNICAL AREA, AND USE IT TO CREATE BEAUTIFUL DESIGNS"

Marco Spier, PSYOP CO-FOUNDER AND HEAD OF 3D

for a couple of months, then as the projects got bigger, two other partners – Justin Booth-Clibborn and Sandy Sellinger – joined and it got more structured. We moved out of the bar, and expanded to ten staff, but we've retained that kind of collective environment."

Psyop isn't an animation studio in the traditional sense, as Spier is keen to point out. Rather than working with strict briefs from an agency, the team favours handling the process right from initial designs to final composites. A common thread is the studio's preference for organic visuals. Designs are roughed out before the team decide how they'll be achieved. "It often means inventing new techniques, and enables us to try something different," says Spier. "We've done a few spots now with live practical elements for particles and smoke effects. It adds a different quality to our work."

FACT FILE

COMPANY

Psyop

LOCATION

124 Rivington Street, Ground Floor, New York, NY 10002

CONTACT

+1 0 212 533 9055

WEB

www.psyop.tv

FOUNDED

2000

NO. OF EMPLOYEES

10

SELECTED CREDITS

Red Hot Chili Peppers
Fortune Faded promo (2004),
Nike 'Shox Neo' ad spot
(2004), 'Bombay Gin' ad spot
(2003), 'AT&T' ad spot (2002),
VH1 Music Awards
animations (2001) and (2000)

SELECTED AWARDS

ANNIE Awards Outstanding
Achievement in an Animated
Television Commercial
nomination, 'Bombay Gin'
spot (2003); ANNIE Awards
Outstanding Achievement
in an Animated Television
Commercial nomination,
Lugz Shoes 'Arrow' spot
(2002)

BELOW

"The NASCAR animations pay homage to comic book art, with familiar touches like picture in picture elements," says Psyop Technical Director Marko Vukovic



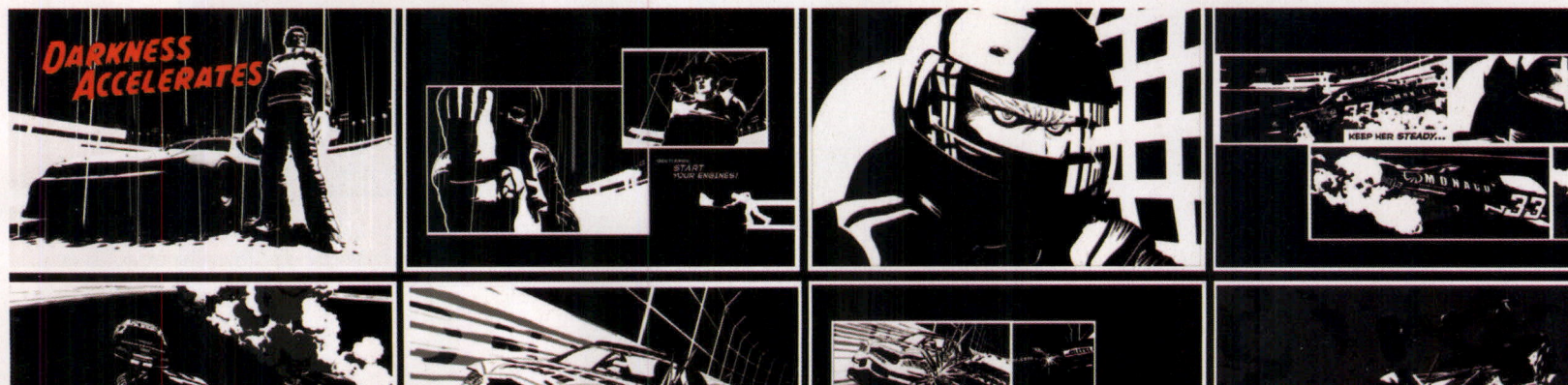
ABOVE

"Kylie [Matulick] produced the design, and then we determined what would need to be live action, what could be animated, and what could be done using tracking," says Psyop's Marco Spier

For the CG, a toon shader is often employed to produce warmer, less obviously rendered results. Spier explains that the studio has close ties with Softimage, collaborating with Michael Arias, who develops most of the toon shaders for XSI: "XSI is our preferred tool, used with *mental ray*. It's just better for the sort of work we do, and the support we get from Softimage is great. We also use *Maya*, but that's generally because it's easier to find the talent."

Having found their niche in the industry, the Psyop team have no plans for any radical expansion in the near future. "The partners are all able to be very hands-on with their projects right now, and I personally believe around 30 staff should be the maximum in our facility," says Spier. "We're happy with our location on New York's lower East Side, and that puts a physical limit on how many people we're actually able to employ anyway. We'd like to explore some longer-term animation, but we're most interested in continuing to focus mainly on those projects we feel really strongly about and developing new techniques and new designs. The main goal for us, as a company, is simply to avoid ever becoming bored with what we do."

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FEATURE

Rising Sun Pictures

This Australian studio is fast becoming a star of the international stage, as its recent work on the next Harry Potter epic upholds

FACT FILE

COMPANY

Rising Sun Pictures

LOCATION

Suite 15 / 16 Charles Street,
East Redfern, Adelaide, NSW
2016, Australia

CONTACT

+61 0 2 9338 6400

WEB

www.rsp.com.au

FOUNDED

2002

NO. OF EMPLOYEES

50

SELECTED CREDITS

Sky Captain And The World Of Tomorrow (2004), *Lord Of The Rings: The Return Of The King* (2003), *Paycheck* (2003), *The Last Samurai* (2003), *The Core* (2003), *The Hard Word* (2002), *Queen Of The Damned* (2001), *Red Planet* (2000)

SELECTED AWARDS

VES award for Best Supporting Visual Effects, *The Last Samurai* (2003); VES Award for Best Visual Effects, *The Lord of the Rings: The Return of the King* (2003); Academy Award, *The Lord of the Rings: The Return of the King* (2003); Dance Music Award for Best Music Video for *Rogue Traders vs. INXS One Of My Kind* (2003)

Founded eight years ago by Wayne Lewis, Gail Fuller and Tony Clark, Rising Sun Pictures has grown from a tiny one-room outfit taking on anything from film work and the web, to a high-profile vendor

working exclusively on effects for movies such as *The Return Of The King*, *Sky Captain And The World Of Tomorrow* and *The Core*. Where once the studio comprised a handful of people working on one SGI machine and a 486MHz PC, it now employs 50 people across two studios in Adelaide and Sydney.

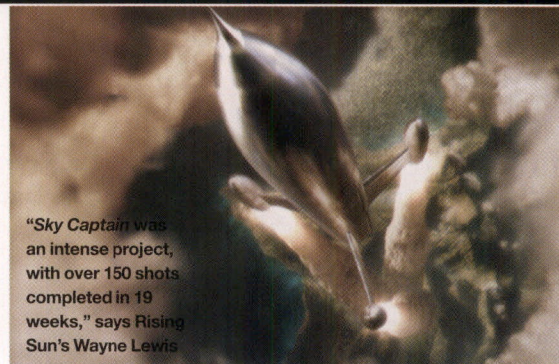
"Gail is a qualified architect and financial savant, while Tony is a Director of Photography with the most annoying ability to understand extremely sophisticated technology like it's a third-year maths lesson," says CEO and Co-Founder Wayne Lewis. "I got 141 out of 144 for my Visual Arts degree, but my main asset was the ability to work 52 hours without sleeping – which is useful when starting a company!"

When they founded the studio, the remote location did pose something of a problem: "It was a challenge we've had to solve to survive," says Lewis. "We had to overcome practical barriers such as remote colour conformance, and viewing materials with remote synchronisation solutions."

A sister company, Rising Sun Research was also created, to develop and market in-house solutions CineSpace and CineSync. "These are often used by the productions we work for to help them collaborate with other vendors too," says Lewis.

Having contributed effects to a number of Australian movie productions, Rising Sun's first major US work came with a series of helmet replacement shots for 2000's *Red Planet*: "We practically stalked VFX Supervisor Jeff Okun to work on that film," Says Lewis.

Since then, the studio has worked on an ever-larger scale and higher profile projects, but Lewis admits remote delivery is always a big issue before the studio wins a bid. "Historically it's always been perceived as a big challenge, and with good reason. But remote delivery concerns can be overcome.



"Sky Captain was an intense project, with over 150 shots completed in 19 weeks," says Rising Sun's Wayne Lewis

What's important is our ability to deliver what VFX supervisors and directors want. Without that, it doesn't matter where you are. With every project, the issue of remoteness diminishes. If you're that far away, and people still use you, then there must be a reason."

The studio's approach is one of high-quality generalism, with a preference for focusing energies on smaller batches of more complex shots: "This 'Swiss Army Knife' approach is necessary for a small company like us, but relies on a very

"WE'VE TRIED TO GROW ORGANICALLY BASED ON SKILL, EFFICIENCY AND QUALITY, RATHER THAN JUST BOLTING ON MORE PEOPLE" Wayne Lewis, CEO, RISING SUN PICTURES

strong technical and artistic mix," he explains. "Our projects vary from 3D intensive to compositing heavy. It means that we'll never be a sausage factory for effects."

The Australian industry has traditionally been fragmented due to the scarcity of work. "Australia must work hard to attract big productions. Large shows have more work than any one place can handle, so the industry needs to show it can 'competitively collaborate', to coin an oxymoron."

Beyond pushing the concept of remote collaboration to other studios as well as clients, the plan is for Rising Sun to continue down the current road, the aim being to handle ever greater shots on more complex sequences, and on higher profile films: "I still don't think we've 'arrived'. But I would say the wheels are down and we are on approach."



ABOVE Another still showing Rising Sun's work on the Mount Doom sequence in *The Return Of The King*. "We use SoftimageXSI and Maya. Rendering often shifts based on the needs"



"With *The Last Samurai* we got to play with ninjas!" says Wayne Lewis. "It involved lots of blood simulation, digital prop enhancement and digital fix-ups"

#041

studio aka

With a team of talented directors, this award-winning studio has established itself as a creative powerhouse for high-profile ad work

Other companies have tried to present a united front, but studio aka takes pride in the talent and individuality of its team of directors and artists, so much so that a few have become as well-known as the facility itself. An approach that embraces 3D without forgetting the value of 2D techniques has forged a unique position within the UK graphics industry. Owned by Pam Dennis, Sue Goffe and Philip Hunt, studio aka has been running since 2000, although Dennis had been running Pizzazz Pictures at the site since 1984: "It was originally a traditional 2D animation facility, with 3D added in a pretty low-key way almost ten years ago," says Hunt. "Now, studio aka's work is split evenly between 2D and 3D."

Commercials work is studio aka's main area of business, using illustrative, 'problem solving' animation to help sell products and services to more mature consumers. In just four years, the studio has built up a prestigious client list, including Orange, NatWest, Compaq, Dyson, Sky, BUPA and Vodaphone. As Hunt says, "We tend not to work on the 'breakfast cereal' genre of commercials. Instead, we get swamped with creative oddities, and this enables us to produce an incredible variety of work."

Beyond ad work, the studio is now looking to make more of an impact in the music video market, an area it's never made much of an effort with, having found the creative challenges offered by commercials more interesting. Interactive projects are occasionally taken on, although this is often used more as a device for promoting the studio than earning money: "We always prefer to see our stuff on television rather than just on a PC," admits Hunt.

The studio currently has around 35 staff, including five directors: Marc Craste, Mic Graves, Grant Orchard, Steve Small, and Hunt himself. Representation is also provided for Studio Soi, the German collective responsible for the award-winning *Annie & Boo*. Many assume studio aka operates as a loose collective, but Hunt is keen to stress that the studio



FACT FILE

COMPANY

studio aka

LOCATION

30 Berwick Street, London, W1F 8RH

CONTACT

+44 0 20 7434 3581

WEB

www.studioaka.co.uk

FOUNDED

2000

NO. OF EMPLOYEES

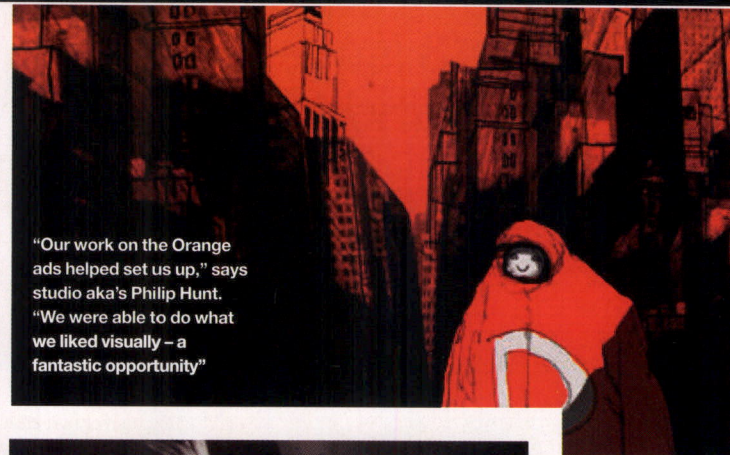
35

SELECTED CREDITS

JoJo In The Stars (2004), *Sky stings* (2003), *BBC 2 idents* (2002), *Compaq ads* (2000), *Orange ads* (2000)

SELECTED AWARDS

Creative Circle Silver Award, Oilatum 'Mitzy' (2004); BAFTA Best Short Animated Film, Clermont Ferrand Prix Du Meilleur Film D'animation, Aspen Short Film Festival Special Jury Prize, International 3D Awards Copenhagen Best Short Film, Animasia SICA Short Film Grand Prize, *JoJo In The Stars* (2004)



"Our work on the Orange ads helped set us up," says studio aka's Philip Hunt. "We were able to do what we liked visually – a fantastic opportunity"



setup is actually very traditional. It's just the approach to internal teams that's out of the ordinary: "In the early days a person's showreel would tend to pigeonhole them, so we introduced a policy whereby the project is passed to the entire studio for our people to come up with ideas," he explains. "It's only once a pitch is won that the chosen director will be introduced to the client. All the directors have built very varied portfolios because of that, cutting their cloth according to each job. Some directors have become individually successful, so some clients will ask for a specific person."

studio aka is now entering a new phase following the success of *JoJo in the Stars*. Directed by Marc Craste, the short

"DESIGNERS MIGHT ARRIVE VERSED IN CLASSIC 2D ANIMATION, AND IN A SHORT SPACE OF TIME THEY'LL BE DIRECTING 3D WORK" Philip Hunt, CO-FOUNDER, STUDIO AKA

ABOVE RIGHT

"We prefer to use XSI: it's understood throughout the studio. We use Maya when needed," says Philip Hunt, co-founder of studio aka. "We tend to use whatever's available and source software as needed"

LEFT

"We love working with external designers like Adrian Johnson, who really brings art to life in 3D without losing touch of the elements that made it good in the first place," says aka's Phillip Hunt

has won rave reviews, multiple awards, and is now available on DVD. Surprisingly, the studio chose to fund the project itself, believing that obtaining money from an external backer would be too difficult to secure: "It's not a short for a regular family audience, but neither is it an art house piece," says Hunt. "So, in the end, we did it ourselves. We want to work on personal projects that we can be really proud of. The success of *JoJo in the Stars* will hopefully put us in a better position to obtain funding for more animated shorts in the future," he says. "We've had a taste of success with the film and we want more. And in order for that to happen, we need to work with people who'll help us develop our material and help us reach much larger audiences." ■

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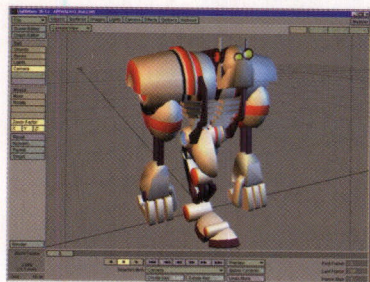
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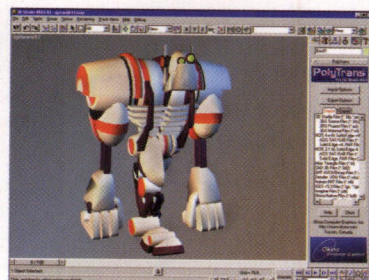
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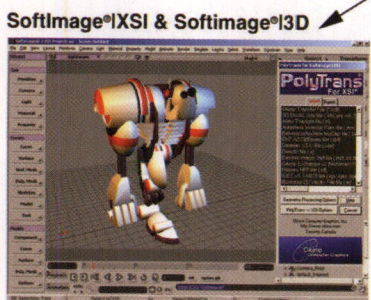
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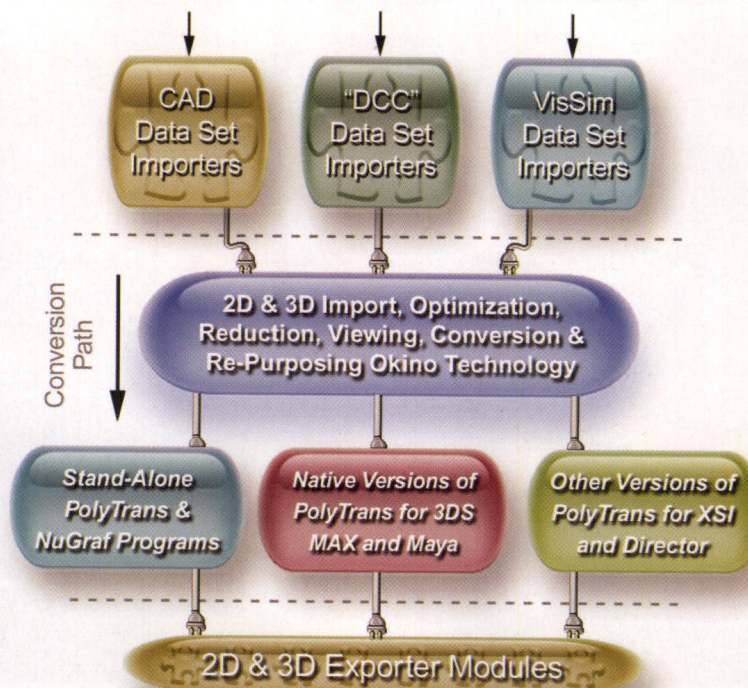
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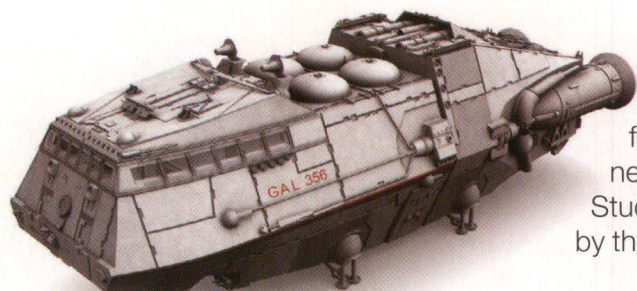
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LIGHTWAVE ADVERTORIAL



Emile Smith (USA)



Over 400 effects shots in a four-hour miniseries worked out at nearly two shots per minute for Zoic Studios. That was the task presented by the Battlestar Galactica remake: we asked Digital Effects Supervisor, Emile Smith, how it was done

TELL US A BIT ABOUT YOURSELF...

I'm Digital Effects Supervisor at Zoic Studios in California, currently working on the *Firefly* Movie, *Serenity*. I started my career back at Foundation Imaging, working on *Star Trek: Voyager* after graduating from the University of California at San Diego.

WHEN DID YOU SEE LIGHTWAVE 3D FOR THE FIRST TIME?

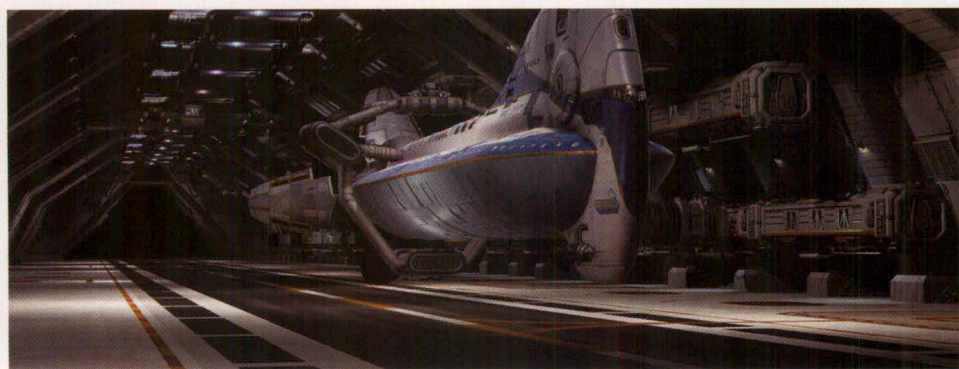
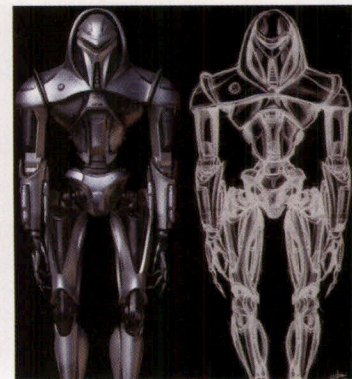
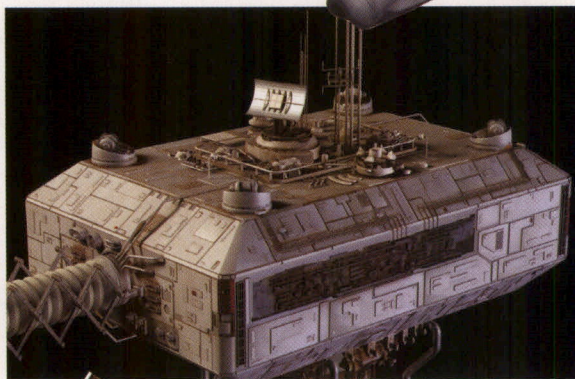
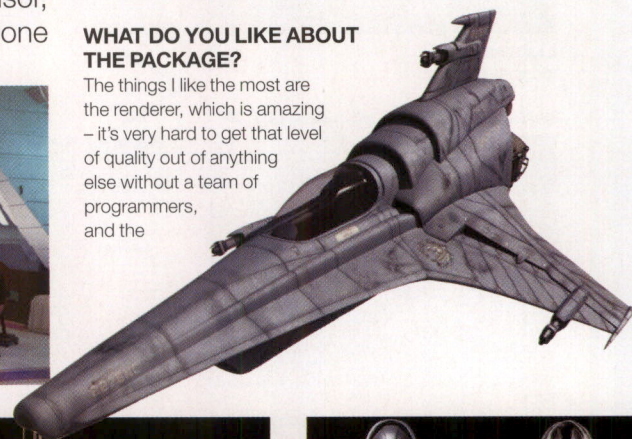
The first time I saw it was while I was in College at an NAB show in Vegas. I had played around with *Electric Image* a little bit, but this program looked so intuitive!

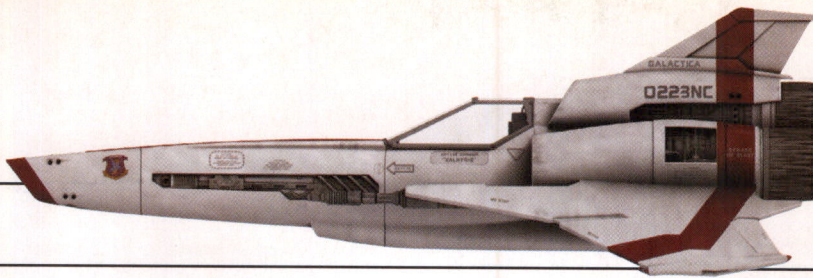
WHEN DID YOU FIRST START USING IT?

I started using it back in school. I bought a copy as soon as the educational price came out on it.

WHAT DO YOU LIKE ABOUT THE PACKAGE?

The things I like the most are the renderer, which is amazing – it's very hard to get that level of quality out of anything else without a team of programmers, and the





#045

camera. It's the easiest camera to create realistic camera moves with, hands-down. You don't create cumbersome rigs for it or any of that nonsense; you can shoot with it as if you were using a real camera. That's huge for a lot of the work I've been doing of late.

THE 'FAULTY' HAND-HELD STYLE THAT WAS THE SIGNATURE OF GALACTICA WAS EASY TO PRODUCE IN LIGHTWAVE, THEN?

The hand-held look was much easier to produce in *LightWave 3D* as opposed to any other software, primarily because you can control it like a real camera in real time. You can look through the lens and follow the action, catch another piece of action then follow it, and so on, very easily. As opposed to having to work with constraints, and not being able to easily follow an object using the interface as a viewfinder – without having to select multiple tools to try and accomplish that like you would in many other 3D packages. As for the 'faulty tracking' (and by that I mean hand-held feel), it was really just a matter of finesse, and using all the info we accumulated during the actual filming of the shot, to make them as painless as possible – and some were painful. We had to warp images in 2D lots of times to get all the edges to line up, etc.

WHAT COULD BE IMPROVED FOR YOU?

The motion blur in *LightWave 3D* could be better. Other renderers have caught up to it in that area. Getting rid of the banding that you see on fast shots would be great.

WHAT SPEC MACHINES ARE YOU USING IT ON AT THE MOMENT?

Dual 2.2GHz Xeons with 2GB of RAM, Quadro 750XGL graphics cards, and Windows 2000.

2.2GHZ XEONS SEEM A LITTLE SLOW? WHY HAVEN'T YOU GOT THE LATEST SPEED MACHINES?

You're right; they are, and we're due for some desktop upgrades! We have a 700-processor strong renderfarm though, ranging from 2.2 to 3GHz Pentiums. We currently use *ButterflyNetRender* to control the farm.

ARE THERE ANY PLUG-INS YOU WOULDN'T BE WITHOUT?

FPrime is the one we use the most, since it came out we have been able to work much more efficiently because of the feedback we are able to see quickly. Now, if it would only work with voxels!

HOW MANY POLYGONS DID THE GALACTICA MODEL CONSIST OF?

If the whole base assembly was loaded up, it was about 3.5 million polygons. We never used all of it at one time though. It was built in groupings that were easy to strip off if not seen. We basically had different versions of the ships with differing polygon counts and texture maps for all the ships. Depending on how close the camera was we would load the appropriate ship.

The Galactica herself was a monster, and we had her in multiple sections we could drop off by deleting pre-arranged groupings of objects, depending on the shot.

WHAT WAS YOUR ROLE ON THE PROJECT?

I was the Digital Effects Supervisor on the miniseries. I worked with the VFX supervisor and the director to create the hand-held look of the show, and to make sure all of the 3D and 2D pipelines worked smoothly (Patti Gannon was our 2D Supervisor). I would work out any

technical challenges that came up along the way, such as how to get the Galactica to render, and also did FX work as well as supervise the artists on the show.

DO YOU DO ANY HANDS-ON WORK NOW YOU'RE A SUPERVISOR?

Absolutely, in *BSG* specifically I designed all the camera work and laid the foundation for lighting, and worked with the other artists on the FX and so on. I love that I'm able to do both supervising and actual animation!

WHICH DO YOU PREFER?

Camerawork and lighting are the two areas I like the most. Probably because they relate to the real world the most.

HOW MANY PEOPLE WORKED ON THE PROJECT IN TOTAL?

Initially it was about ten people, but it went up to about 20 during the last month or so.

DID ZOIC DO ALL THE 3D ON THE PROJECT?

For the four hour mini-series yes, we did all the work. It lasted about eight months in all. We won the VES (Visual Effects Society) award for Best VFX in a Mini-Series, as well as the award for best TV VFX at 3D Festival. We were also nominated for an Emmy this past year for the show.

WAS THERE MUCH REFERENCE TO THE ORIGINAL SERIES?

Yeah there is, we put a lot of the ships from the original series in the all-CG museum we did for the show, as well as the original Galactica and Base Star. Most of the designs were based on the original to an extent as well, but then updated to feel more modern.

WHAT'RE YOU WORKING ON NOW?

A movie for Universal called *Serenity*, a big-budget version of the TV show *Firefly*, with the same cast.

IS SERENITY ZOIC'S FIRST FEATURE-FILM PROJECT? IS IT YOURS AS WELL?

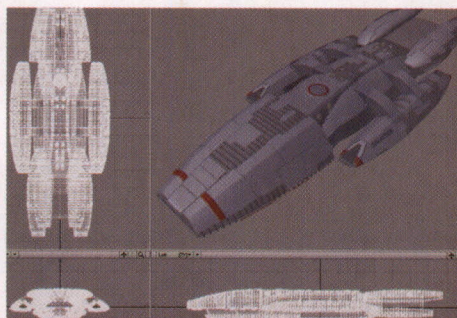
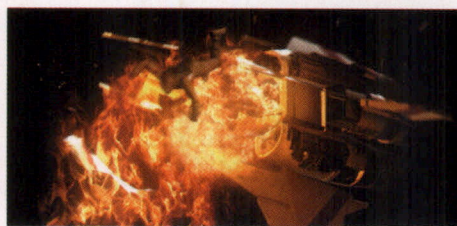
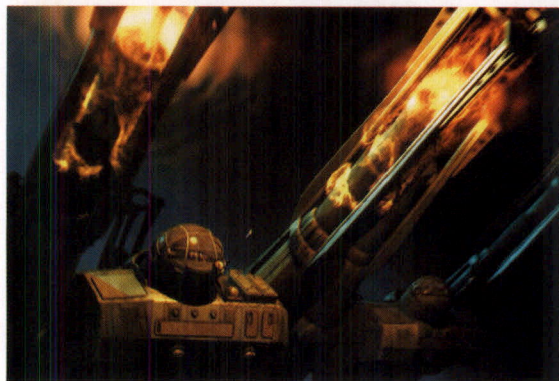
Zoic has worked on several features since forming, including *Spider-Man 2*, *Day After Tomorrow*, *Van Helsing*, etc. *Serenity* will be the first show we're doing 99 percent in-house, with Rhythm and Hues and Illusion Arts picking up a handful of shots from us. The first feature I worked on was called *The Jackal* with Bruce Willis; ironically enough, the work was farmed to us at Foundation Imaging from Illusion Arts.

ARE THERE ANY DIFFERENCES BETWEEN WORKING FOR THE BIG SCREEN AND WORKING FOR TV?

Oh totally! The models must be much more detailed. We're painstakingly UVing all of the ships with extreme care, so they look appropriate to the big screen. We have to deal with Look Up Tables (LUTs) for film, match clips, colour space, etc. In essence, it's a whole other world. Albeit one I love!

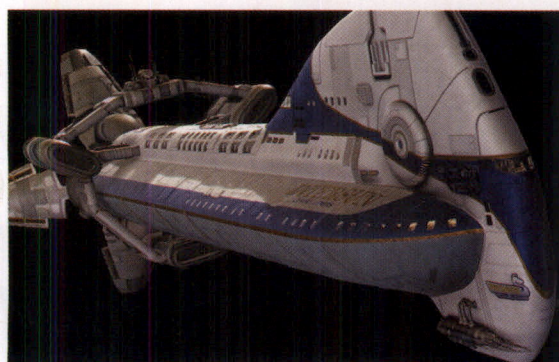
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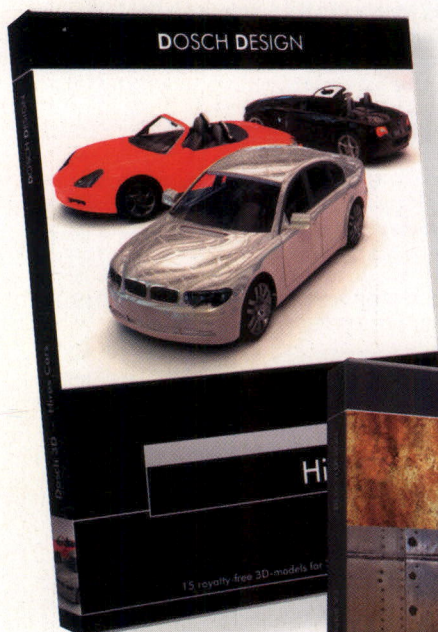
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This issue, German-based 3D resource company Dosch Design has teamed up with *3D World* to offer a fantastic giveaway of 20 3D model and texture collections. Just visit the URL below and fill out the online form (or call us to request a postal entry form) and you could be in with a chance of winning one of ten copies of *Dosch 3D: Hires Cars* (RRP \$119 each) or one of ten copies of *Dosch Textures: Rust & Metal V3* (RRP \$79 each).

When reviewed *Dosch 3D: Hires Cars* back in issue 48, we awarded a verdict of 9 overall to this collection of 15 detailed car models, ideal for creating high-end renderings, realistic-looking special effects or professional visualisations.

"They look photorealistic when rendered, and they're even good enough for movie work," our reviewer enthused. "Nothing has been spared with these cars. All have in excess of 100,000 polygons; some well over double that. Every element of the cars in the

collection can be individually manipulated and textured, enabling

them to interact fully with your scenes and characters. This is an incredible collection at an incredible price."

Dosch Textures: Rust & Metal V3 is an equally impressive collection, which continues the company's tradition of creating high-quality surfacing materials for use in a wide variety of professional projects, in fields ranging from 3D broadcast, film and game design, advertising, print, CAD visualisation, motion design and more. This collection of 480 mostly seamlessly tileable, multi-layered textures is a great timesaver for any project requiring convincing metal finishes. The textures include bump maps and other layers for specular and reflection characteristics; all are at a high resolution of up to 2200x1700 pixels. Find out more about Dosch's range of 3D resources at: www.doschdesign.com

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TUTORIAL

EXPERT RIGGING IN MAYA

From sentinels in the Matrix series to Doc Ock in Spider-Man 2, tentacled bad guys are a blockbuster must. Here's how to set up a rig to animate your very own, using Maya

BY JOE HARKINS

Tentacled appendages have been around as long as weird creatures in movies and comic books have existed. But creating the proper movement, and getting the right look, is deceptively difficult. Mechanical tentacles such as the sentinels from the *Matrix* series, or like Doc Ock's in *Spider-Man 2*, are particularly challenging.

This tutorial walks you through setting up a character with tentacles, and should give you a good idea of the general approach to take. Part of working in CG is the ability to push the limits of reality – mechanised parts can be exaggerated to stretch and reach further than possible, or be squashed like a slinky – if set up properly, they can do anything you like.

Michael Ingrassia, from Escape Studios in London, has provided us with a cartoony character with tentacles to rig and animate. I'm assuming you're already familiar enough with *Maya* that you can rig a complete character without a problem, so we'll be focusing on the tentacles and claws – how they attach to the body, and how all the parts work together to help bring the character to life. The character rig is very basic, so if you're trying to do anything fancy, you'll probably need to add more to it.

We'll walk through a spline IK-type setup in *Maya*. *Maya* has a very intuitive and powerful IK solver and its spline abilities function well when set up properly. There are no FK controls for the tentacles, although I would usually provide that to the animator as an option with the ability to switch between the spline IK controls and the FK joints. If you're familiar with a three-chain FK to IK setup, then you could apply the same principles here. If you get stuck, take a look at the finished file on the CD.

JOE HARKINS

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Joe Harkins is a Creature Technical Director at Sony Imageworks, and is currently working on *Open Season*. Most recently, he finished work on *Constantine* at Tippett Studio. His background includes rigging and animation for film and broadcast

FACT FILE

Expert rigging in *Maya*

FOR

>> *Maya* 5 or higher

DIFFICULTY



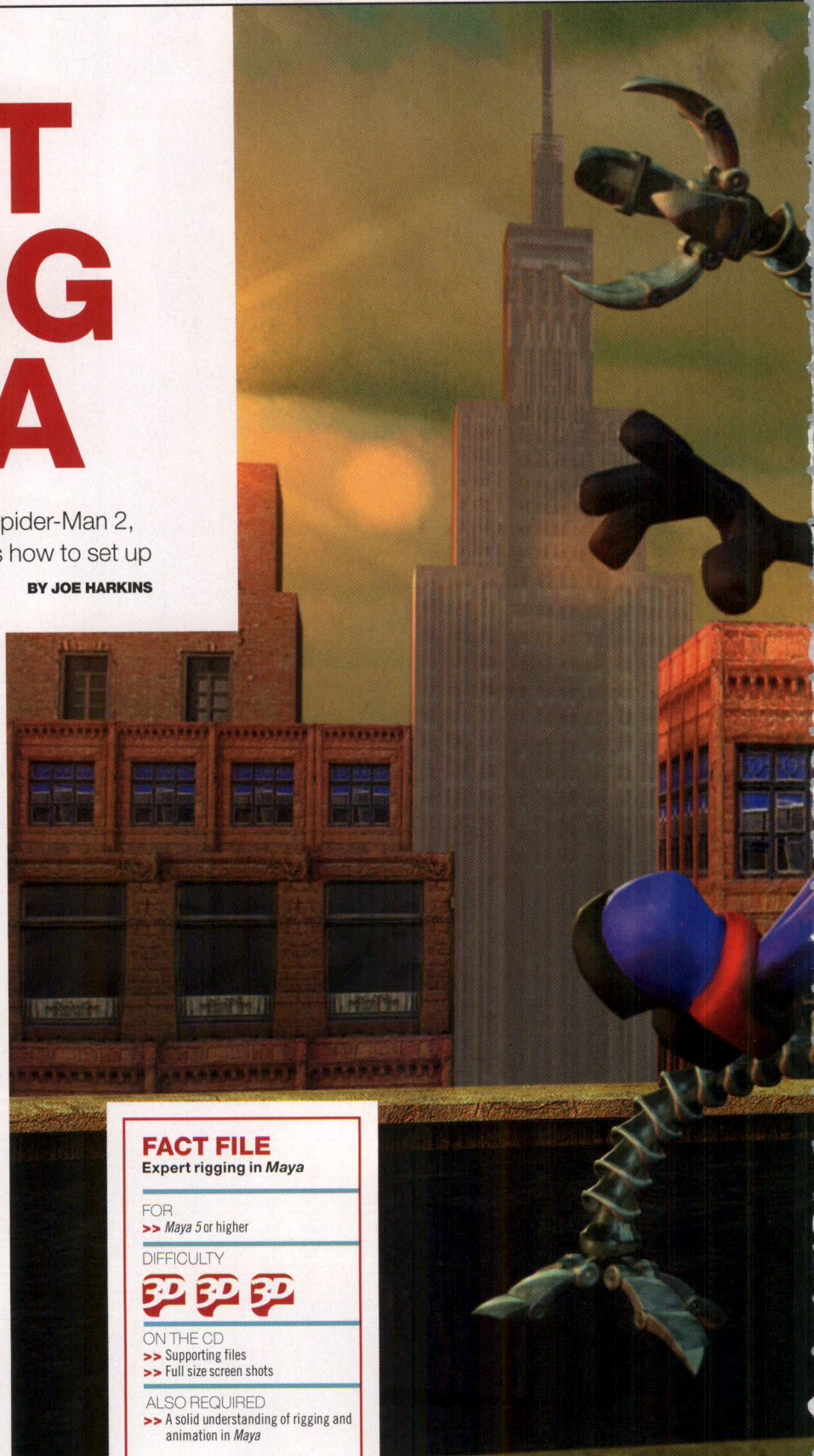
ON THE CD

>> Supporting files

>> Full size screen shots

ALSO REQUIRED

>> A solid understanding of rigging and animation in *Maya*



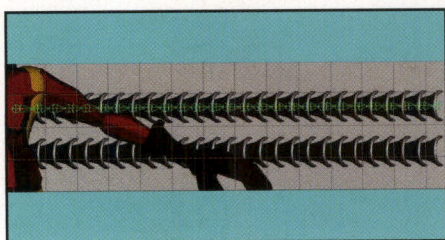


TUTORIAL

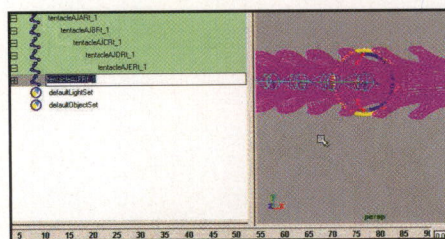
>> PART ONE

Defining Movement

To move your tentacles, funnily enough, you need constraint...



1 Using Maya's Joint tool (Skeleton > Joint tool) place one joint for each link in the tentacle using the top or side view. Translate the joints into place. Do this for each tentacle on only one side of the character – we'll use the Mirror tool later to copy everything over to the other side.

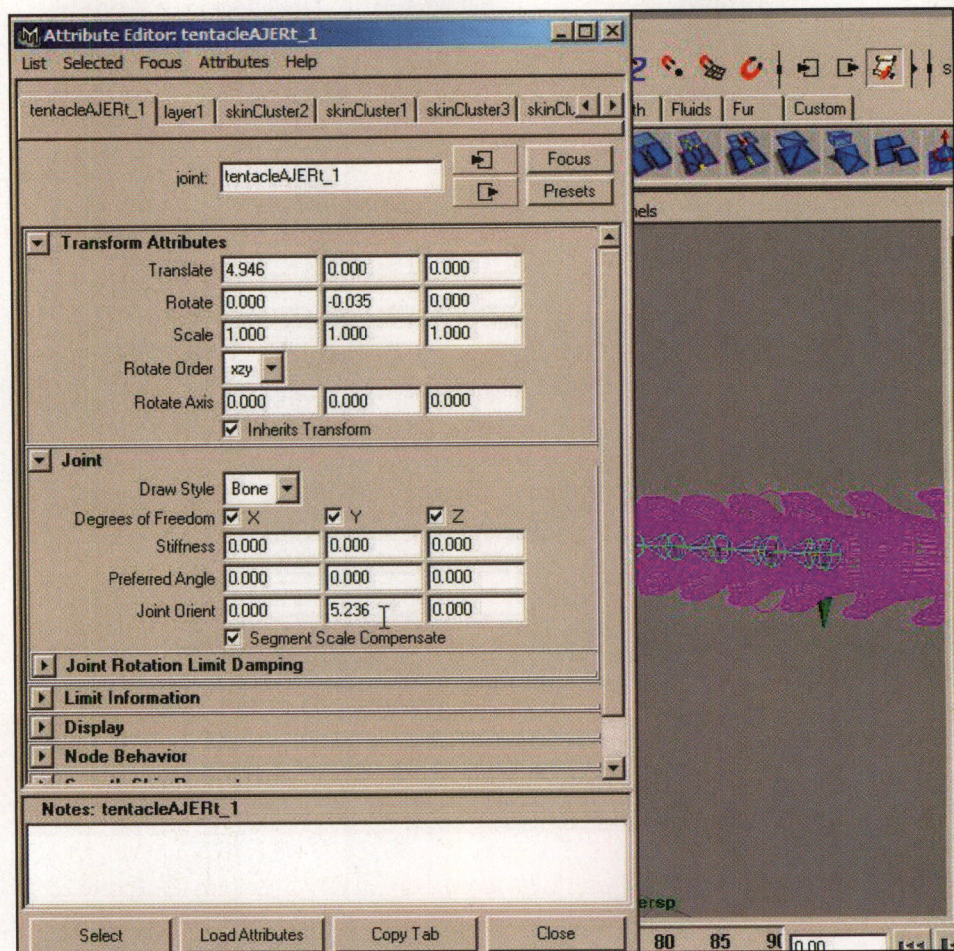


2 It's important that, when you're creating joints, you name them properly. I use the following naming conventions: 'objectLetterJointLetterSide_1' for each tentacle, name them accordingly like this: tentacleAJART_1, tentacleBJART_1, and so on.

EXPERT TIPS

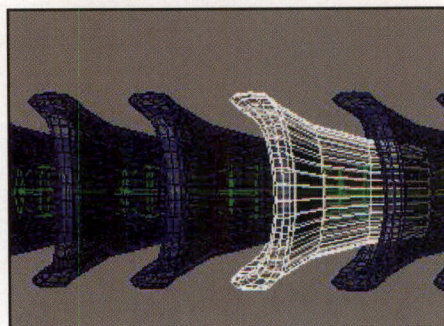
CONSTRAINTS

>> Each constraint in Maya has a weight that can change from 0 to 1. When it's set to 0, the constraint will be ignored and the constrained object will no longer follow. If you want to constrain an object in Maya to more than one node, you can setup a system using Set Driven keyframes that turns each constraint's weight on or off depending on which node you want the constrained object to follow. Using Set Driven keys and custom attributes to drive the weights makes this easy.

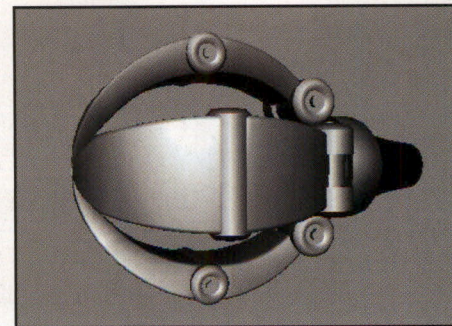


3 For accurate joint orientations you'll need to use the Attribute editor ([Ctrl]+[A]) and edit the joint orient attributes of each joint for proper rotations. Alternatively, you can edit the joint orientations select the joint and go into component mode ([F8]), then press

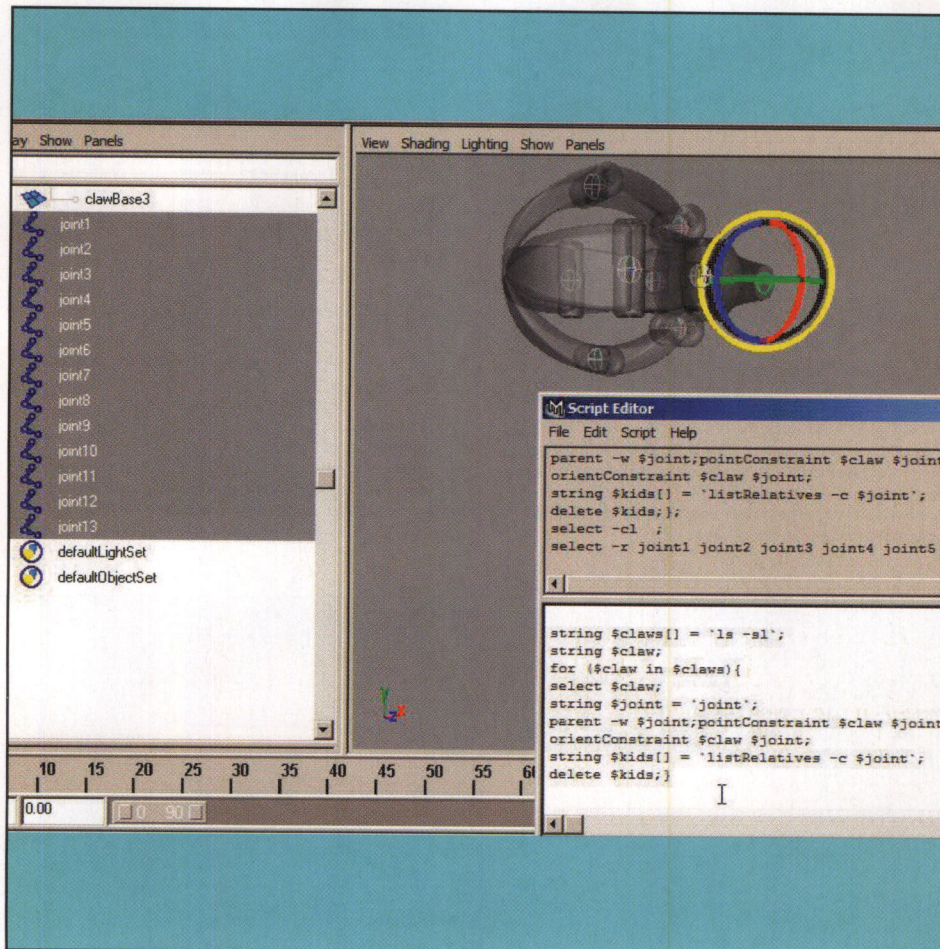
the question mark button on the menu, and select the pivot directly to rotate it into place. You can mirror the joints using the Mirror tool (Joint > Mirror) so you only have to do one side. Check the orientation by rotating the joints when you're done.



4 There should be one joint per link in the tentacles. If you created them at the right articulation points then all you'll need to do is parent each link to the corresponding joint and you're done. Select each piece of geometry and the proper joint, and use the [P] key on the keyboard to parent.

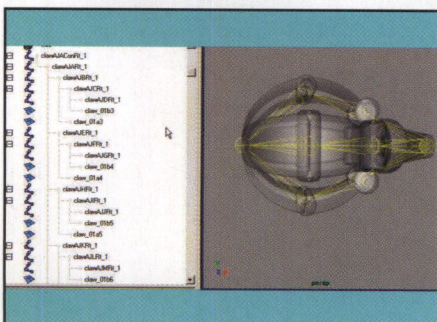


5 For each claw we need a joint to control the rotations. The geometry already has the proper pivots in place. We're going to use MEL flow control (also known as 'for loop') in order to do this, and orient and point constrain the root to the end of the tentacle. Do this for one side only – we'll mirror it later.

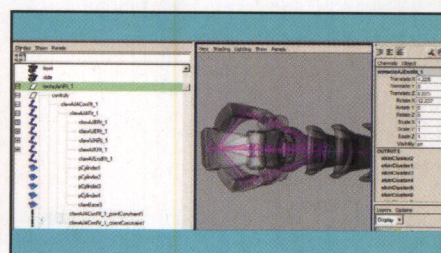


6 Select all the claw pieces on the right-hand side of the character, and then type this into the Script editor. Use the numerical keypad [Enter] key to execute the loop: `string $claws[] = `ls -sl`; string $claw;`

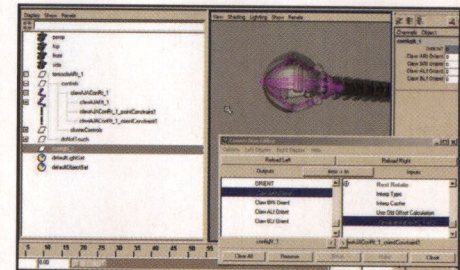
`for ($claw in $claws){ select $claw; string $joint = `joint`; parent -w $joint; pointConstraint $claw $joint; orientConstraint $claw $joint; string $kids[] = `listRelatives -c $joint`; delete $kids; }`



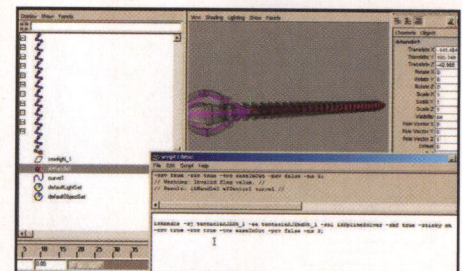
7 Parent the lower claw joints to the upper claw joints, and then parent the smaller parts to the base. Your joints should look similar to the image above. Once you're done, name all the joints. Orient them so they spread properly when opened, mirror the root joints and, finally, parent the geometry appropriately.



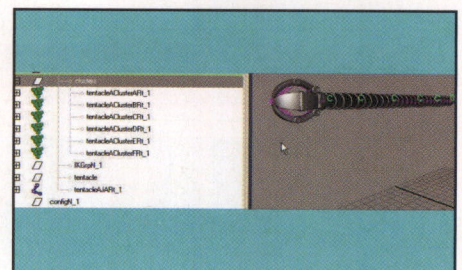
8 To constrain the claws to the tentacles, we need empty group nodes – in our case, we're going to use joints as our empty nodes. Select the base joint of each claw and run the script from step 7 again. You'll have four new joints with proper placement. Name them and then point and orient-constrain them to the end joint in each tentacle. Finally, parent the claw root to the constrained joint. The claw should follow the tentacle chain when rotated.



9 Create an empty group and call it 'configN_1'. Add an attribute called 'Orient' and lock it. Add one attribute for each claw's orientation (Edit > Add attribute). Make the min 0 and max 1. Using the Connection editor (Window > General Editors > Connection Editor), connect the configN_1.clawOrientAttribute to each claw's orient constraint weight. This will allow the claws to switch between tentacle and world orientations.



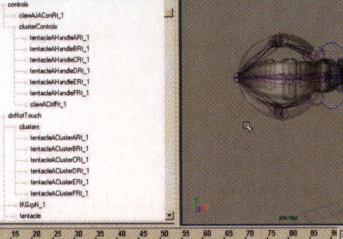
10 Each set of tentacles needs a spline IK setup. To do this we're going to use the MEL command with inserted variables for each tentacle: `ikHandle -sj tentacleAJART_1 -ee tentacleAJEndRt_1 -sol ikSplineSolver -shf true -sticky on -ccv true -roc true -tw easesInOut -pcv false -ns 3;` You can replace the name of the start and end joint for each tentacle and re-run the command. Name the spline IK handles and curves properly then group them together ([Ctrl]+[G]).



11 Each spline IK handle has a curve associated with it. This curve drives the joints, so we need to control the curve. The easiest way to do this is to select each CV on the curve and create a cluster handle for it. Clusters can be found in the Cluster menu (Deformer > Cluster). Create one cluster for each CV in the curve and name them accordingly. Group the clusters together when you're finished.

The screenshot is divided into two panels. The left panel shows a code editor with a ROS2 launch file named `test.launch.py`. The code defines a `LaunchDescription` object with several `IncludeLaunchDescription` calls for different robot components (base, camera, gripper, etc.) and a `SetLaunchConfiguration` call for the robot name. The right panel shows a 3D simulation of a robot in a Gazebo environment. The robot has a black base, a camera mounted on top, and a gripper. The simulation is running on a grid floor.

The screenshot shows the NetBeans IDE with the 'New' dialog open. The 'Name' field contains 'test' and the 'Package' field contains 'com.example.test'. The 'Create' button is highlighted. The background shows a project view on the left and a code editor on the right.



Set Driven Key

Load Options Key Select Help

Driver

clawCtrlRt_1	clawSpin pivotUpDown pivotSideSide clawBaseAOpen clawBaseBOpen clawBaseCOpen clawBaseDOpen clawTipAOpen clawTipBOpen clawTipCOpen clawTipDOpen
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Driven

clawAJArt_1	rotateX rotateY rotateZ
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Key Load Driver Load Driven Close

SET DRIVEN KEYFRAMES

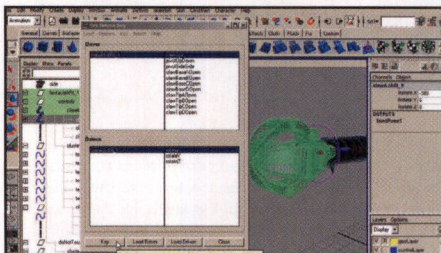
16 Using Set Driven keyframes, we're going to automate the claw movements. While we could just animate directly on the joints, it makes more sense for us to automate the process and

have all the controls on one node. This is why we created the claw controller and added all of the attributes to it. To open the Set Driven keyframe window, in the Animation menu, go to (Animate > Set Driven Key > Set > Options Box).

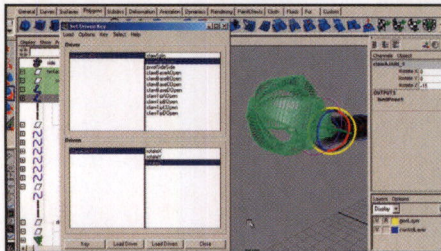
>> PART TWO

Setting Set Driven Keys

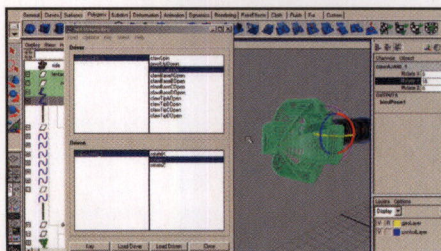
Claw your way through this section using Set Driven keys



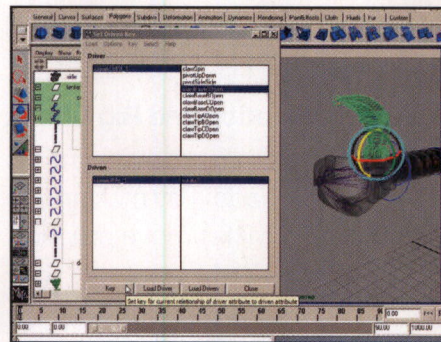
17 In the Set Driven Key window, load the clawACtrlRt object as the driver, then select 'Spin'. Load clawAJRt_1.rotateX as the driven. Set the spin attribute to -10 and rotateX to -360. Hit the Set Key button. Change spin attribute to 10 then set rotateX to 360 and set another key. Test the spin attribute to see if the claw works properly. Reset the attribute to 0.



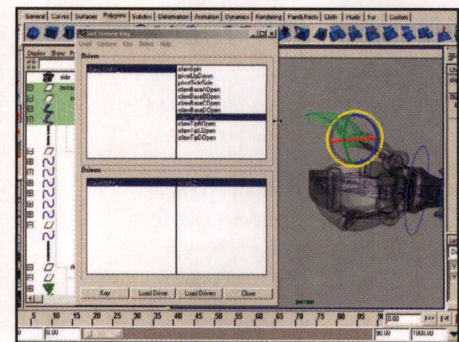
18 With the clawACtrlRt still loaded, select the pivotUpDown attribute to be the driver. Select the rotateZ of the clawAJRt_1 to be the driven. Set the pivotUpDown attribute to -10, rotateZ to -15, and hit the Set Key button. Change the pivotUpDown attribute to 10 and set the rotateZ to 15 and set another key. Test the pivotUpDown attribute and reset it to 0.



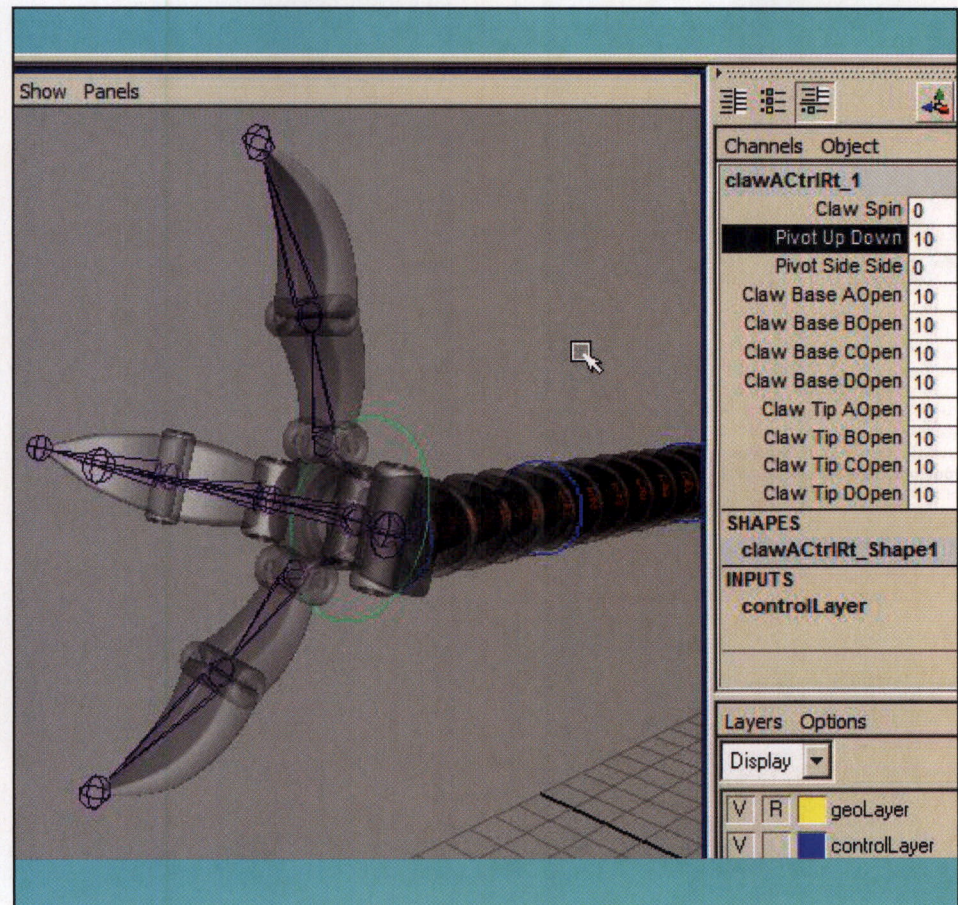
19 With the clawACtrlRt still loaded, select the pivotSideSide as the driver. Select the rotateY of the clawAJRt_1 to be the driven. Set the pivotSideSide attribute to -10 and rotateY to -15. Hit the Set Key button. Change the pivotSideSide attribute to 10, set the rotateY to 15. Set another key. Test the pivotSideSide attribute and reset it to 0.



20 With the clawACtrlRt still loaded select the clawBaseAOpen attribute to be the driver. Load the rotateZ of the clawAJRt_1 to be the driven. Set the clawBaseAOpen attribute to -10 and rotateZ to 60. Now hit the Set Key button. Change the clawBaseAOpen attribute to 10 and set the rotateZ to -60 and set another key. Test the clawBaseAOpen attribute and reset it to 0 when you're done. Do the rest of the claw bases the same way.



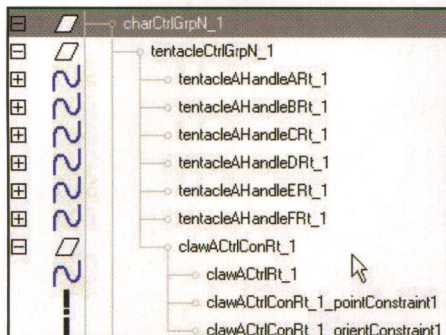
21 With the clawACtrlRt still loaded, select the clawTipAOpen attribute to be the driver. Load the rotateZ of the clawAJRt_1 to be the driven. Set the clawTipAOpen attribute to -10 and rotateZ to 60, and then hit the Set Key button. Change the clawTipAOpen attribute to 10 and set the rotateZ to -60 and set another key. Test the clawTipAOpen attribute and reset it to 0. Do the rest of the claw tips the same way.



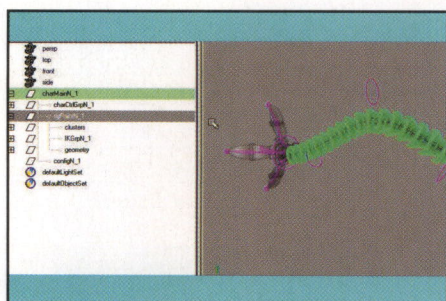
22 Follow step 21 again for all your character's claws and then test the controls and attributes to make sure everything is working properly. Although you can't mirror setDrivenKeys,

you could essentially make the process a MEL procedure to help alleviate the repetitive nature of the task. A more advanced Maya user will rely more heavily on MEL and less on the actual interface.

TUTORIAL



23 Group the claw controllers together and name it 'clawCtrlGrp_1'. All your tentacle controls should be grouped together as well under a group named tentacleCtrlGrp_1. Group the joints from the all the claws and all the tentacles together and name it 'skeleton_1'. Finally, select the two Ctrl groups and the skeleton group. Group those together, and call the result 'charControls_1'.



24 Group the IK and cluster groups together under a node named 'rigParts', and then parent the config node, rigParts group and control groups to the character's top node. Take a minute to go through your hierarchy and make sure everything's named and parented properly – a tidy rig will save you a headache later on in your pipeline. Your hierarchy and character should look similar to the one in this image.

EXPERT TIPS

ADVANCED OPTIONS

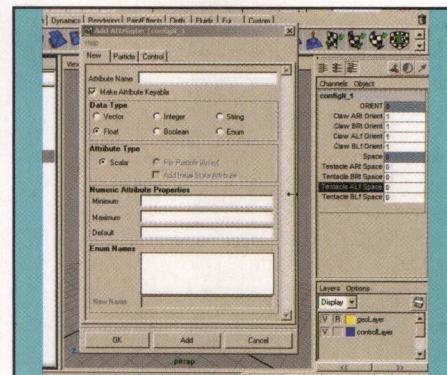
>> For more advanced IK you could add attributes to make the joints and curve stretch. To do this you need an arc length node to get the length of the curve: then, using a multiplyDivide node, hook up the output of the measurement node and divide it by the number of joints in the chain. Finally, hook that resulting operation into each of the joints. You could then set up a control attribute that would turn the stretchy IK on and off. The basic idea looks something like this: tentacle joint length scale = curve length / number of joints.

>> PART THREE

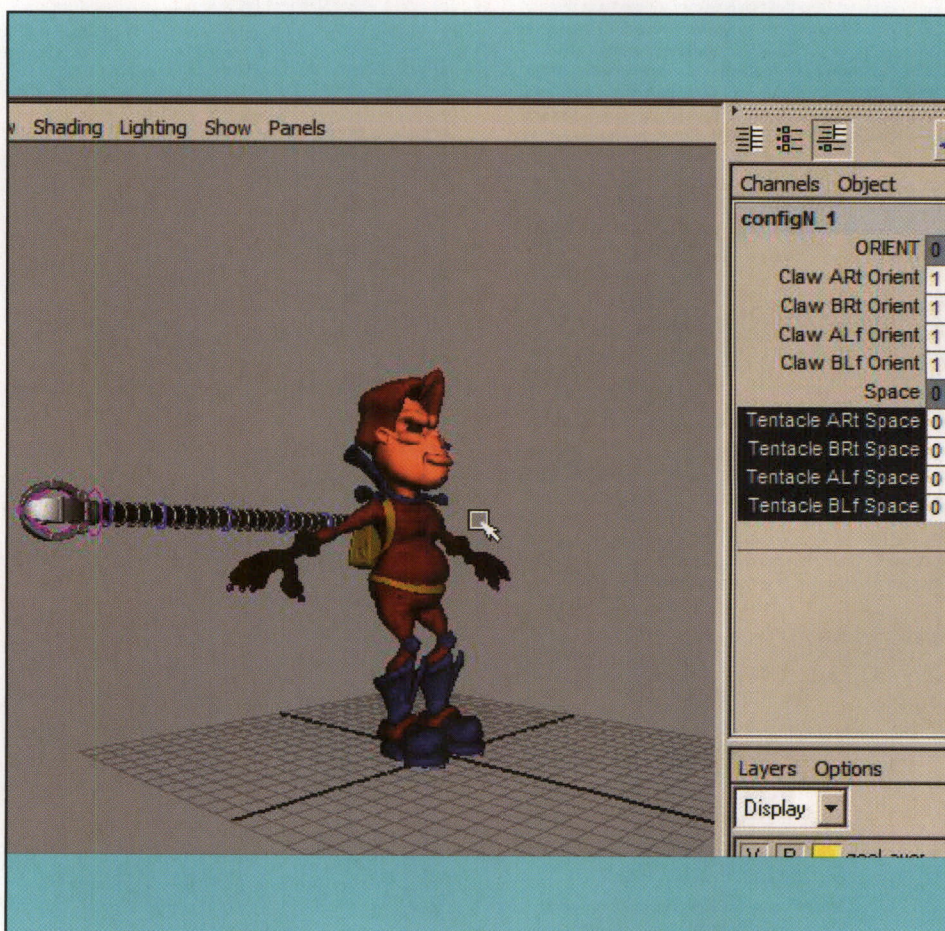
Final Calibration and Rig Check

Finish your baddie by making sure the tentacles move properly

25 To finalise the tentacle and claw rigs, we need to make sure that the tentacles follow the rest of the hierarchy properly. So far we've not done anything to constrain the tentacles to the body. We're going to use group nodes that are constrained to the world (and to the base of the character) to control which space the tentacles live in. The root of each tentacle will need to stay attached to the body, but we can setup the rest of the controls to follow whatever space we want.

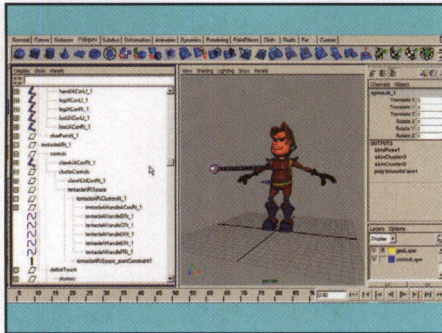


26 Add these attributes with the following settings: min 0 max 1 default 0, space, tentacleARTSpace, tentacleBRTSpace, tentacleBLfSpace, tentacleALfSpace. Lock the space attribute (right click over it and select 'Lock selected') so your config node should look something like this.

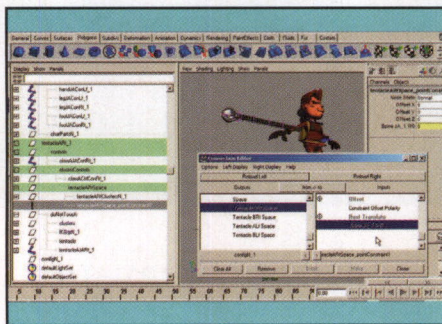


27 After you've added the attributes above, you should make the tentacles switch between world space and character space. After all, you might not always want the tentacles to follow

the character, but rather have the tentacles attached to something else. This will allow for more options when animating. First create four empty group nodes ([Ctrl]+[G]) and name them, tentacleARTSpace, etc.



28 Point and orient-constrain the tentacleSpace groups to the main body joint (the base of the character) and then parent them right above spline IK control group in the hierarchy. Group each set of spline IK control curves for each tentacle, and parent them to their respective tentacleSpace groups. In total, you'll have four new control groups – one per tentacle – with the controls parented properly under their space controls. Double-check your hierarchy with the image or the file on the CD for accuracy.

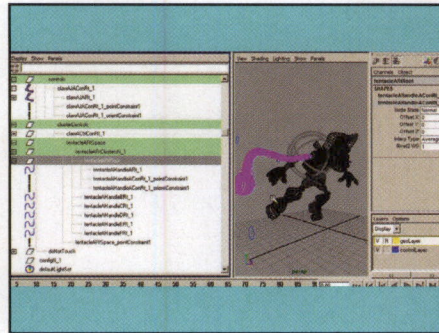


29 Open up the Connection editor again and load the configN_1 as the driver. Using the tentacleARTSpace as driver attributes, connect them to the point and orient constraint weights on the respective space control. Test the attributes by moving the character away from the origin and change the attribute to make the tentacles follow between the character and world space.

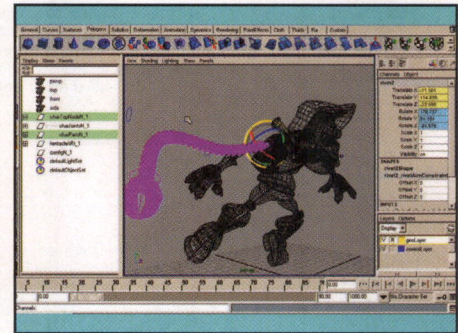
EXPERT TIPS

STICKING OBJECTS TO POLYGONS

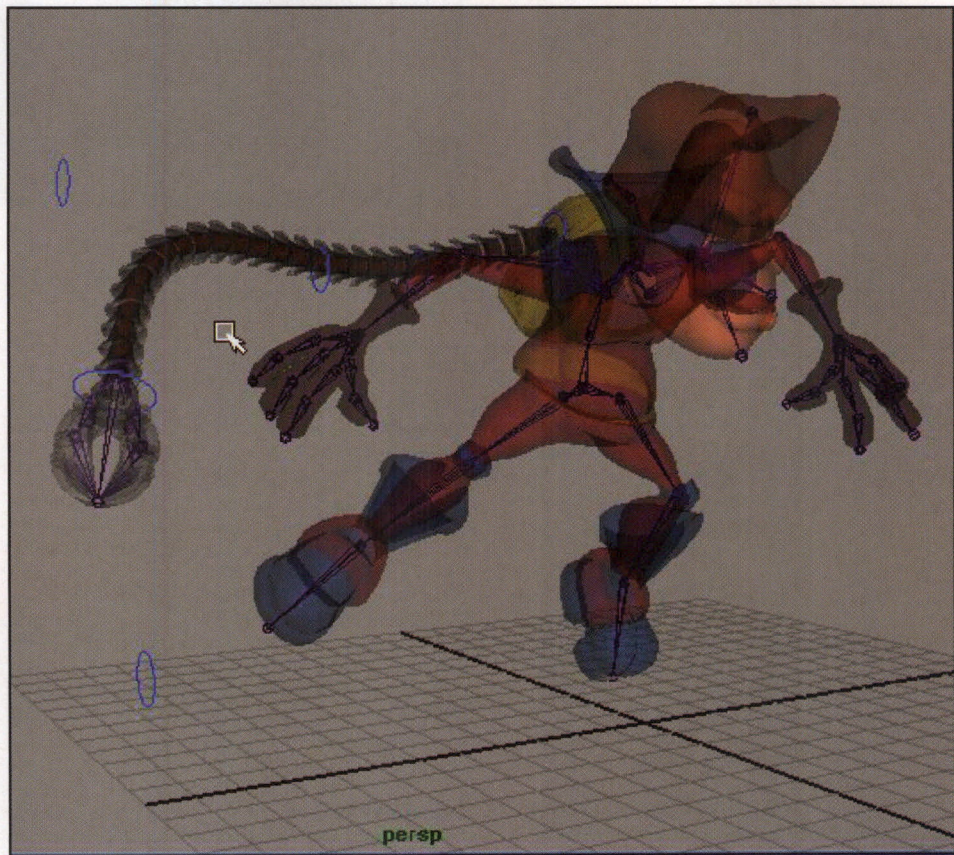
>>> You can stick things to polygons in Maya easily by using the Rivet MEL script (on the cover CD). This creates a curve on two polygon edges, then a lofted surface and uses the pointOnSurface node to stick an object to itself. It's very intuitive, and easy to use. The character example on the CD is setup this way and, if you feel comfortable doing so, you can do the same thing and ignore step 30.



30 For each tentacle's root IK control, we need four more empty groups, named 'tentacleARTRoot', etc. Point and orient-constrain these groups to the nearest spine joints and parent them under Controls in the hierarchy. Constrain the top two tentacles to the closest back joint – the idea is for the tentacles to follow along with the backpack. Finally, parent the root IK control curve of each tentacle to the proper tentacle root group, so that the base of the tentacles always follows the body.



31 If after going through step 30, you're still having trouble with the character's tentacles following the backpack properly, then source the rivet.mel script that you can find on this issue's cover CD. You can use this script to create a locator, which you can then use to constrain the root of each of the tentacles to the backpack's polygonal mesh. Essentially, it'll allow you to stick an object to a polygon. The character on the cover CD is setup in this way for reference purposes.



32 Once you're finished, you should be ready to animate. Double-check your hierarchy and naming conventions, and then make sure all of your controls are done correctly. When rigging, it's very important to make sure you never miss a detail, because a

small error can cause big problems and be a real nightmare to fix later on. You should now be able to animate the character and the tentacles, switch between spaces, and have full control over the claws. Try a simple (albeit not very villainous) animation, like throwing or catching a ball. ■

Q&A

RIGHT All vine tendrils need to be affected by a single deformation for a *Day of the Triffids* kind of effect



ON THE CD
Full-size screengrabs and supporting files for this Q&A

3ds max by PETE DRAPER



“I’m trying to animate a vine or tendril plant wrapping over a sphere, but I can’t get it to conform correctly. Can you help?” **DANIEL MCPHERSON** | via email



It’s relatively simple to implement this effect on a sphere shape. Each vine tendril should, in this example, be a spline rather than a mesh.

If we use a mesh, the deformation used to drive the main effect will compress and smear it out around the deformation like rubber, which

ruins what we’re trying to do. By using a spline, we can keep the cross-section shape intact, as it only becomes geometry at the top of the stack, and/or at render time. The deformation modifiers would only affect the shape of the spline, not its cross-section geometry.

As you want to wrap multiple vine tendrils around the sphere, and because we need them all to be affected by a single deformation, we just set up the basic array of splines by creating a single line with two vertices. This must then be collapsed down to an Editable Spline, and we then need to create multiple copies of the Spline sub-object, so we get a circular array of lines when viewed from the Top Viewport.

There’s not much point in applying a deformation at this stage, as we only have a couple of vertices in a single line – one at the top and one at the bottom. We need to add a lot more vertices, but bear in mind that we still want to be able to modify the original ones, if we need to.

The best way of approaching this is to apply a Normalise Spline modifier and set its Segment Length to a low value, which will place the vertices at small distances from each another. If we need to amend the length of the spline by changing the position of the vertices in Editable Spline, we can do so, and the Normalise Spline modifier will fill in the gaps accordingly.

DO THE TWIST

Next, apply deformation to displace the spline around the object. This will look quite uniform, so add additional modifiers, such as Twist, to curl the splines around. We can also add a Noise modifier to break up the shape of the vine. Finally, to add to the deformation around the surface of the object, apply a Displace modifier, and set its mapping to Spherical and its size to double the radius of the sphere.

Animating the effect highlights a problem. When we move the spline setup, we also move the deformation. We need to make sure the displacement stays in place while the splines pass over the surface. Apply an XForm modifier beneath any deformation modifiers, and above the Normalise Spline modifier. We can now reposition the splines without affecting the Displacement’s Gizmo.

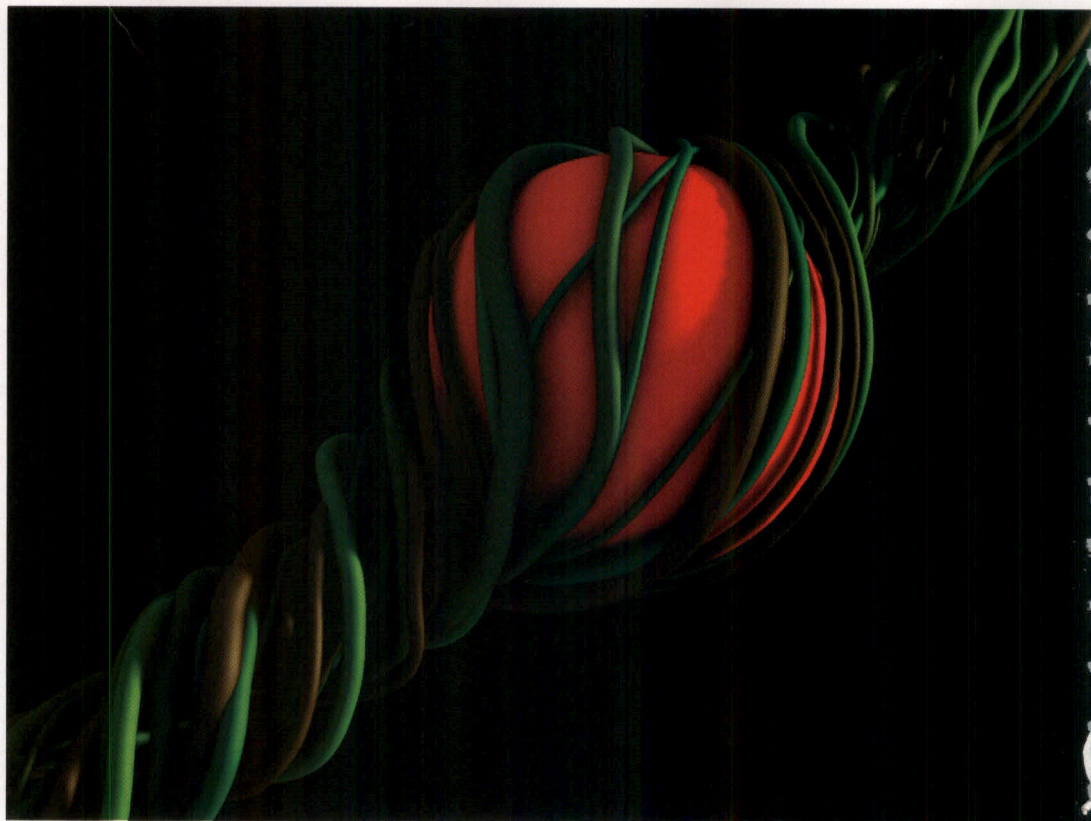
We’ve now locked the additional deformation modifiers in place: it looks like the splines are growing in an erratic fashion. Reposition the XForm modifier above the Twist and Noise modifiers to see the difference in effect. Add additional Noise to the top of the stack to break up the effect a little more, in case the original Noise deformation was lost in the displacement.

The effect still looks a bit uniform. In the additional version of the scene (see the cover CD), I attached each spline to a single object, but used instanced modifiers across each object to ensure easier editing – apart from a unique Noise modifier for each one, each with its own seed. The final animation shows tendrils enveloping the ball, deforming over its surface. The tendrils are unique, with instanced modifiers (see additional scene on the Stop Press part of the website).

PETE DRAPER
www.xenomorphix.co.uk



Pete Draper is the VFX Director at Lightwork, Bristol. To find decent reference material for this Q&A, he watched *Little Shop of Horrors*



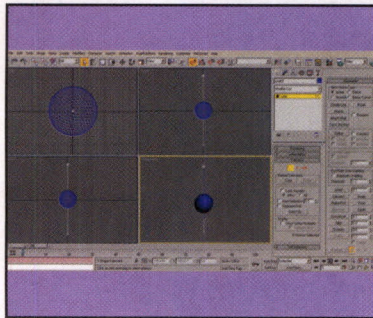
EMAIL US: 3dw.qanda@futurenet.co.uk

GO ONLINE: <http://forum.3dworldmag.com>

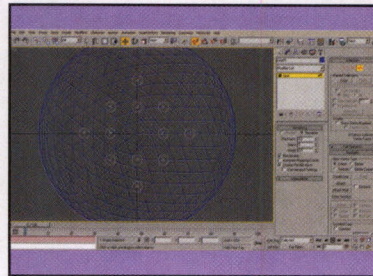
#057

STEP BY STEP: JEEPERS CREEPERS

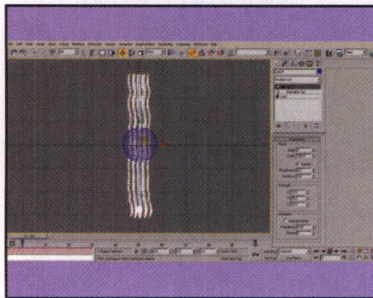
Build your very own twining vine effect following the six steps below, using your very own little bag of 3ds max tricks...



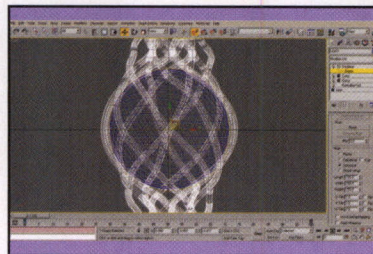
1 Create a Geosphere in the Top Viewport, in the centre of the scene. Give it a Radius of 75, and 8 Segments. In the Front Viewport, create a line that runs through the middle of the Sphere, as illustrated.



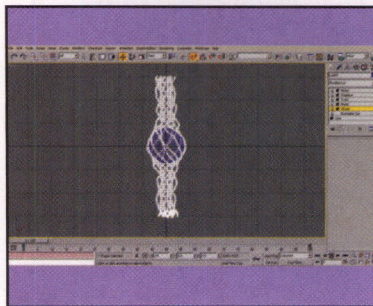
2 In the Top Viewport, select the Spline sub-object. Relocate and clone the Spline sub-object several times to create an array of splines, as illustrated. Open the Rendering rollout, enable Renderable and Display Render Mesh. Set the Thickness and Sides to 8. Turn off Optimize in the Interpolation rollout.



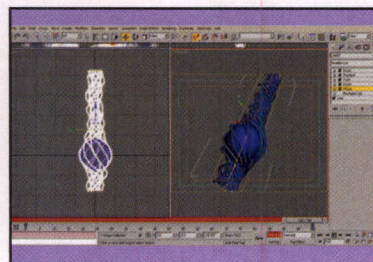
3 The next step is to add a Normalise Spline modifier to the modifier stack, and also set its Segment Length setting to 3. Then you can add a Noise Modifier, and enable the Fractal setting. You also need to set Iterations to 3 and the Strength to 20 for all axes.



4 Add a Twist modifier. Set its Angle to 720, and Twist Axis to Y. Add a Displace modifier to the stack. Set the Strength to 83, and Decay to 1.3. Set the Map type to Spherical, and Length, Width and Height settings to 155. Relocate the modifier's Gizmo if necessary, so that it's overlaid on top of the Geosphere.



5 Add another Noise modifier to the modifier stack, and set the Strength to 10 for all axes. Go to the Normalise Spline modifier, and add an XForm modifier so that it's inserted between the Normalise Spline and Noise modifiers, as illustrated.



6 Now, move the XForm modifier's Gizmo vertically down, so that the top of the splines are beneath the Geosphere. Enable Auto Key, go to frame 100, and reposition the XForm modifier, so that the top of the splines are above the Geosphere. Assign materials, enable motion blur as desired, and render off the animation.

3DS MAX TIPS

Trail tendrils around tricky objects with these handy tips, and secure your place in the 3D Ivy League

01 It's quite simple to deform the tendril objects around the sphere, because the shape is a mapped object. For more complex surfaces, a bit more work is needed. Use multiple deformations to affect the right shape – a sculpted FFD cage should be enough to generate the result. Use multiple cages to get the spline to conform to the tricky areas.

02 The FFD cage must conform to the shape of the object we're growing the spline around, or it won't work properly. To do this, apply the FFD modifier to the object and enable Conform to Shape. This modifier can then be copied and pasted in the spline(s). It may need its lattice reorientating and relocating, depending on the orientation of the source object, but the end result can be deformed to get the splines to pass over the surface. Alternatively, when the spline is passed into the lattice of the FFD cage, it will deform as necessary, so we could try that. This can be enhanced by linking it to the source object and animating the position of the source object as well, thereby generating the effect of a vine opening up to swallow it.

03 There are additional deformation tools that we could use, but they aren't suitable for this project. The Conform tool, for example, is either a compound object or a space warp. The compound object type would seriously smear the spline geometry right across the surface of the object we're trying to conform to. The space warp gives a slightly better result, but it would force the Conform into one planar direction, with no control over sub-object selection falloff. This reduces the strength of the effect the further away from the object we go.

For quick fixes to 3ds max problems, post your questions in our online forum: www.3dworldmag.com/3dsmax

Q&A

RIGHT Each chute uses the same basic animation curves in *LightWave*, with different procedural displacement settings to ensure variety



ON THE CD
Full-size screengrabs and supporting files for this Q&A

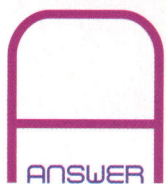
LightWave

by BENJAMIN SMITH



“I’m animating a skydive sequence and want to animate a parachute billowing open in a realistic manner. How do I do this?”

ESTRID GEERTSEN | Via email



On a recent holiday in Australia, I was foolish enough to go skydiving. Now, while I may be incredibly anal about computer animation most of the time, as I plummeted toward the ground at 130mph, I wasn’t even vaguely interested in glancing upward to check out the dynamics of the parachute canopy opening above me.

In our example, the parachute is an American WW2 type; a design familiar to anyone who’s seen *Band of Brothers* or the spectacular drop sequence in *A Bridge Too Far*. In fact, it’s a close examination of this latter sequence that’s guided the animation I’ve done here. It seemed like, when a parachute opened, it would spring back from the parachutist to the limit of its cables and then mushroom, before springing open to its full shape. Once fully open, the air pressing into it appears to make the canopy almost rigid, so it shimmers and quivers.

It seems like this might be an excellent outing for *LightWave*’s new cloth and soft-body dynamics systems:

but a little experimentation revealed it was difficult to control the simulations needed, so I fell back on a lower-tech solution, which nonetheless gave a very realistic result.

CHOCKS AWAY

The key to this technique is to make use of a series of morph targets and utilise *LightWave*’s ability to do additive morphs, whereby different variations to the base shape can be blended together to get different combined shapes. On top of this shape animation is an extra layer of Displacement maps, to give the canopy an organic, seemingly wind-blown turbulence.

Because we want to use morphs, it’s important that the parachute is modelled in this peculiar tall, narrow shape and not (as might seem more logical) in its fully open shape. The open shape will be a morph target, so it can blend together easily; something it can’t do as a base shape.

To create the base, I copied the completed canopy to another layer and then used Modeler’s Taper tools to distort it into the narrow shape I wanted. I then placed

the open parachute in the background layer and selected Map > Bkg to Morph. This adds a new morph target to the object, deforming it into the background shape, which can then be deleted. The top_bulge morph shape can then be added by using the Taper tools in a similar way. The folded morph shape was made by just scaling the parachute down so it almost entirely vanishes. It’s not a very realistic way of doing it – a real parachute would surely unfold in a more complex fashion – but it’s all going to happen so fast, no one will notice.

You’ll also find, in the model, a Weight map which has been applied to the strings. This gently tapers from a value of 100% at the bottom down to 0% at the top, near the canopy. In the animation, this is used to prevent the displacements affecting the bottom of the strings, so they don’t wiggle around like crazy and snap out of the poor parachutist’s hands.

So, clutching this model to your chest as if your life depended on it, dangle your legs over the edge of the page and plunge towards the walkthrough, where we’ll get the parachute to blossom open reassuringly, before fluttering down to land snugly in a bed of tips.

BENJAMIN SMITH

www.redstarstudio.co.uk



Benjamin Smith is the Director of Red Star Studio, a creative digital film production service based in Sheffield, in the north of England. One careful owner, full service history: £299 ONO

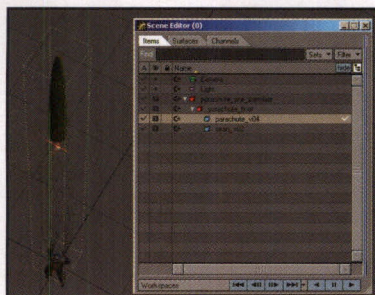
EMAIL US: 3dw.qanda@futurenet.co.uk

GO ONLINE: <http://forum.3dworldmag.com>

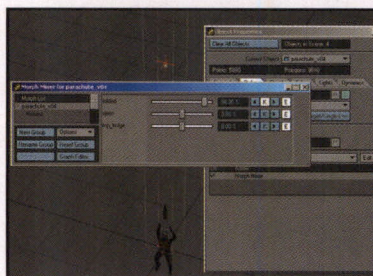
#059

STEP BY STEP: TERMINAL VELOCITY

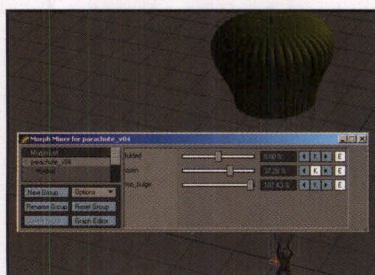
Animating a parachute opening is a doddle using the six steps below. Just make sure you look before you leap...



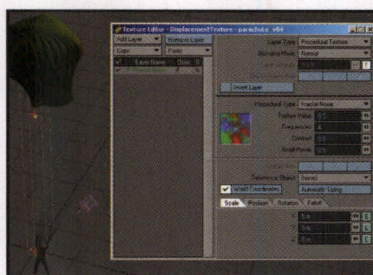
1 Load `parachute_base.lws` and you'll see a tiny wiggling airman (animated via a Motion Designer file created using a character rig in another scene) posed ready for his parachute to billow open. Load `parachute.lwo` and parent it to the `parachute_float null`.



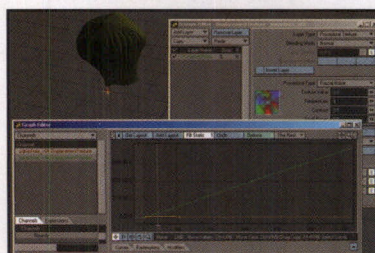
2 The parachute is still in its weird-looking base shape, so Add the Morph Mixer plug-in on the Objects Properties panel's Displacement tab. Double click it, and wind the folded morph up to 100% to fold the parachute away. Then move forward to frame 20 and drag `Folded` down to 0%.



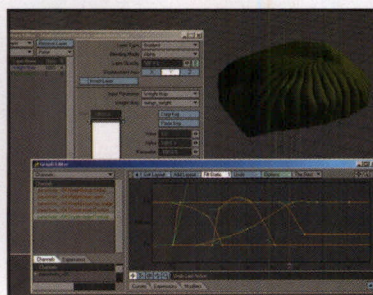
3 With `Folded` at 0, the parachute springs back up to full height. Move on again to frame 50 and give the `Open` target a key at 100%, opening the canopy fully. Between `Folded` and `Open`, add a few keys to `top_bulge` so it begins to inflate at the top a bit, before the canopy opens fully.



4 Again on the Object Properties panel's Deform tab, add the Textured Displacement plug-in, below Morph Mixer, and enter its panel. Set the texture to a Fractal Noise Procedural, set the three scale values to 5m, and the texture value to 5, and switch on World Coordinates.



5 Click 'E' next to the texture's Position Y value to add an envelope animating the texture up in Y, 5m in every 20 frames, so the displacements keep changing and making the surface ripple. You can now animate the Layer Opacity on the Fractal Noise to tone deformations once the parachute is fully open and more stable.



6 Add a gradient as an Alpha layer above the Fractal Noise, using the Weight map called `strings_weight` to mask the displacements over the strings. You can now load all the animation curves you've created into the Graph editor and tweak to perfect the animation.

LIGHTWAVE TIPS

Come fluttering down to earth and bounce gently off these lovely, pillow-soft LightWave tips

01 There's a parachute `float null` in the hierarchy for the parachutist. It's positioned in the location of the canopy when it's fully opened so, by animating this, you can make the parachutist dangle realistically under it. Try adding the Noisy channel plug-in to the pitch and bank channels of this null, from the Graph editor, to get an automated drifty dangling effect. Alternatively, apply the *Twitch* plug-in (which featured in *3DWorld* issue 48 – see page 78 for back issues) available from the plug-in database at www.flay.com.

02 If you wanted to animate the parachute to deflate and fall to the ground as the parachutist lands, a more effective technique would be to model the parachute in its open state, and let ClothFX collapse it and drape it over collision objects positioned to resemble the ground.

03 Take a look at the `parachute_finished.lws` scene on this issue's cover CD – a scene I've finished and tweaked substantially to refine the animation.

For quick fixes for *LightWave* problems, post your questions in our online forum: www.3dworldmag.com/lightwave

TUTORIAL

MODELLING A MOTORBIKE IN TRUESPACE 4.3

Install the free version of Caligari's trueSpace 4.3 on this issue's cover CD, and get your 3D motor ticking over with this beginner-level tutorial taking you through how to model, texture, light and render your ride **BY ANDY KAY**

Oldie it may be, but *trueSpace4.3* remains a goodie. Caligari's app was one of the first to really take advantage of the performance gains presented by the new generation of processors and graphics cards. And with today's speedy processors and GPUS, working in *trueSpace 4.3*'s customisable 3D workspace with a comprehensive selection of modelling tools enables you to construct complex and detailed models.

Designed to be easy-to-use, with a very visual interface, *trueSpace4.3* has one of the shortest learning curves of any 3D application, and provides a great introduction to the world of 3D modelling. *trueSpace4.3*'s animation capabilities are also aided by physical simulation, enabling you to bring your models to life in a convincing real-world manner. Finally, with full control over lights and materials, you can render them using the high-quality Lightworks rendering engine, which supports radiosity. Following the basic tutorials – and using the program's own help tools – even a total beginner can produce 3D artwork quickly.

In this tutorial, we'll use the full version of *trueSpace4.3* on the cover CD to explore the package's modelling tools as we build the model of the motorbike, then move on to texturing and rendering. If you get stuck at any stage, don't panic – all the components of the model are included on the CD too. It's also a good idea to open up the full-size screengrabs of the steps included on the CD as you work, because some of them have extra annotations to help you work. You may not complete every step of the tutorial the first time you sit down to do it, but hopefully what you learn will leave you with a solid foundation, and will give you the confidence to experiment with the tools and begin your own *trueSpace* projects. Happy modelling!

ANDY KAY
www.ak3dgfx.com



Andy Kay is a freelance 3D illustrator and modeller, specialising in architectural and product visualisation. This month he's got out his 3D toolkit and dismantled a virtual motorbike for you. You can email Andy at: andy@ak3dgfx.com

FACT FILE

Modelling a motorbike

FOR

>> *trueSpace4.3* (free on the cover CD)

DIFFICULTY

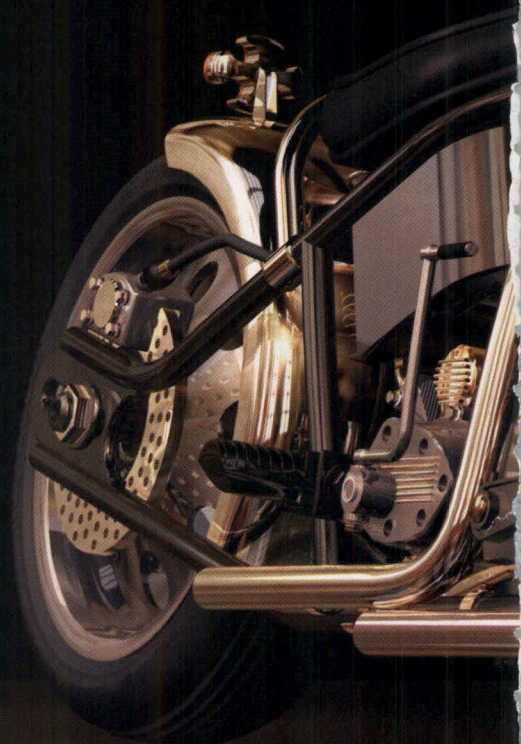


ON THE CD

>> Complete scene file
>> Pre-made models and materials
>> Full-size screenshots

ALSO REQUIRED

>> *Photoshop* or similar 2D application



#061

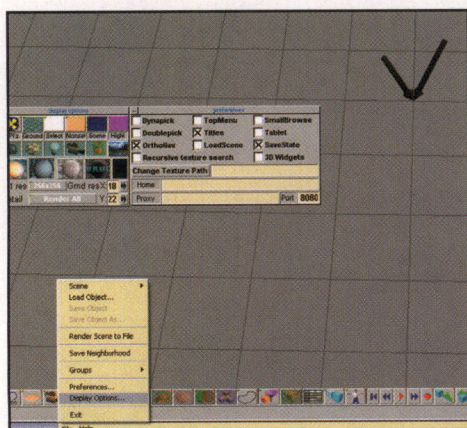


TUTORIAL

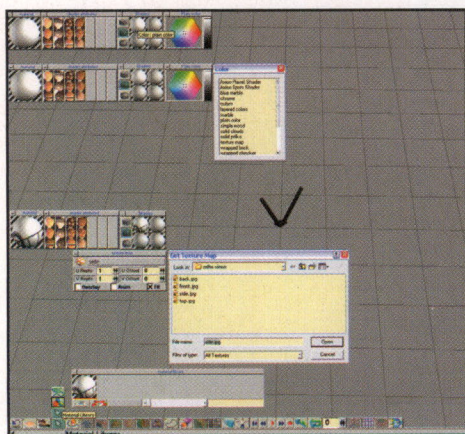
>> PART ONE

Getting started

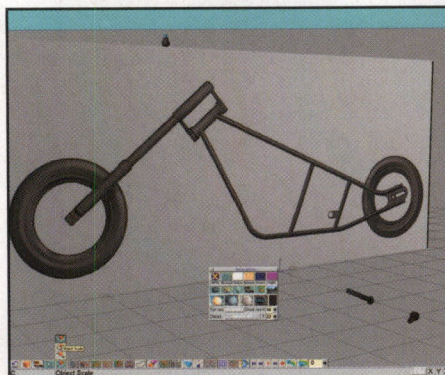
Get to grips with *trueSpace* 4.3's icon-driven interface, and begin the task of modelling the bike



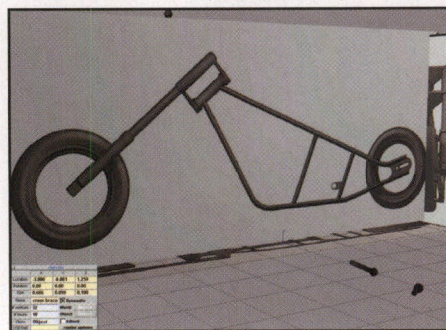
1 Firstly, we need to set up the workspace. With *trueSpace* running, click on 'Display options' in the File menu (at the bottom left of your screen) and use the image here (also on the CD) to set up the API, ground and texture properties, giving you a solid display with a wire ground. The Preferences menu allows you to switch off 3D widgets temporarily, as they aren't needed at this stage.



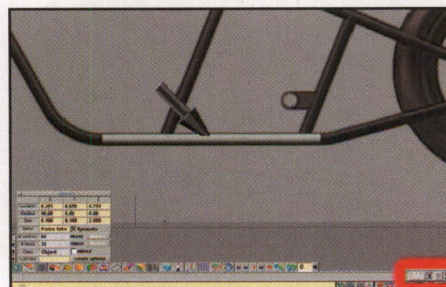
2 Before we begin modelling, we need to set up our reference images. Open the Material editor by right clicking on the paint icon. In the editor's Shader window, left click on the Colour icon. Select Texture map from the menu, click on the image bar in the Texture map properties dialogue box, and specify the required file. Open a new Material library, insert the material, and give it a name.



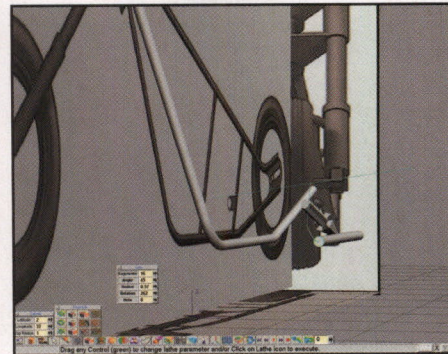
3 Repeat step 2, creating materials for all of your orthographic views, and save them all in the Material library. Select the material with the top view image and, from the Primitives menu, select Add plane. Click on the Paint icon to apply the material to your plane. You might need to increase the texture resolution in the Display Properties to remove any jagged edges.



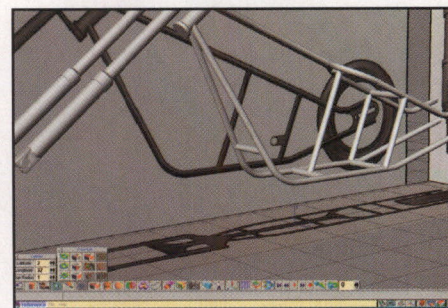
4 With all the reference materials applied to plane objects, you need to arrange them using the Move, Scale, Rotate and Grid tools. Right clicking on the Object icon (the white arrow) opens up a text dialogue where you can enter values manually, if you prefer. It's important that you work accurately at this stage; extra time spent on preparation pays dividends when modelling.



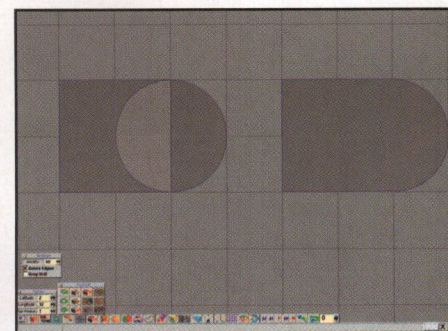
5 Reset the Material editor by right clicking on the Sample icon. Now right click on the Primitives menu and scroll up to Cylinder before releasing the button. The cylinder's properties will open. Select Longitude, and set it to 32. Left click on the Add Cylinder icon to add the cylinder object to your scene. Rotate it 90 degrees, then use Move and Scale to align it with your reference images.



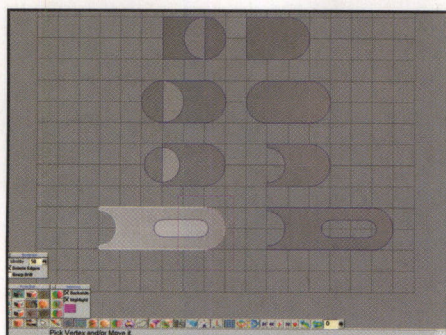
6 Right click on the Point Edit tool and select Faces. Pick an end face on the cylinder and select the Lathe tool. Open its properties with a right click, and Adjust its Path until it matches your reference drawings. Repeat this process at the rear of the frame tube. Keep a note of these settings, as you'll need to use them for the other half of your frame.



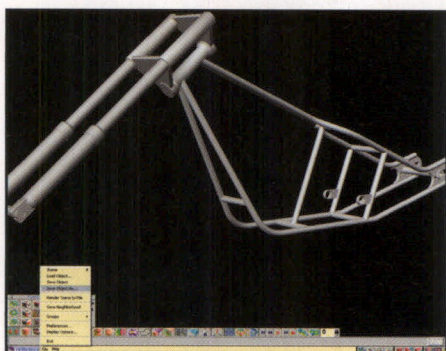
7 Continue building the frame using the techniques we've used so far, and ensure everything is scaled and aligned properly. As with all 3D projects there'll inevitably be a lot of repetition; it's essential to make sure you have a good understanding of what we've done so far before moving to the next stage, where we'll be looking at the Boolean tools.



8 In the next few steps, we're going to use the Boolean tools to make the plate that mounts the rear axle. Load a cube and cylinder primitive, and position them as shown. Select the cylinder, click on the Boolean Union tool and then the cube to permanently join them. Delete Edges must be selected in the Boolean properties, so that all interior faces will be removed while we create a new object.



9 Make two copies of your object. Union another cylinder to one copy, and subtract a cylinder with a reduced radius from the second. Use the Point Edit tools to stretch your new object (if you use the Lasso tool to select your points, make sure you enable Backside in its properties). Finally, scale the second object you created, and use it to cut a hole using Boolean subtraction.

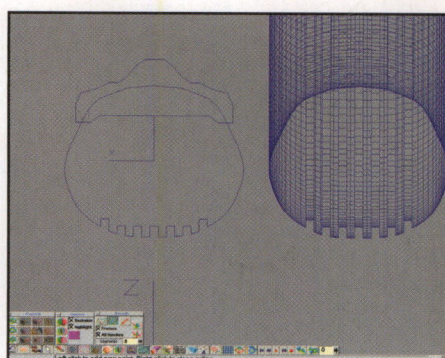


10 Create headstock and footrest brackets using the same principles and tools. Glue your frame together to create one object. Use the Glue tools here, rather than Booleans, as this will allow you to make changes later. Once all the objects are joined, name the object before saving it as an object file. This allows us to bring it into any scene we're working on.

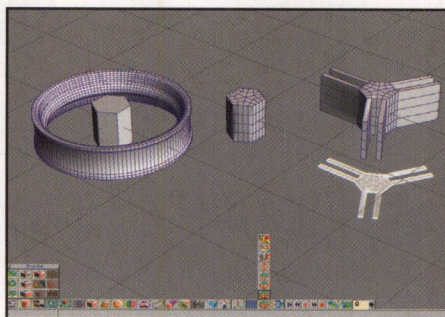
EXPERT TIPS

QUICK START GUIDE

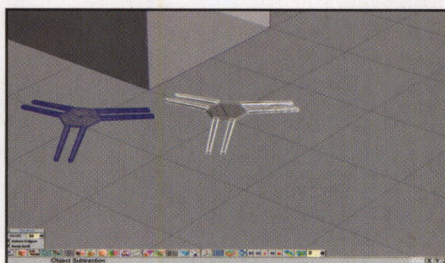
>> Caligari has included a Quick Start Guide with the documents on the CD, and it's a good idea to print this out before you start, and keep it beside your computer – it'll prove invaluable in helping you find your way around the interface. To help locate and explain the icons, there's also a Tool Finder (at the bottom right of your screen). This demonstrates how everything works by running a short video of each tool you point at. Take some time to familiarise yourself with the almost totally icon driven interface – it may seem strange at first, but it's very logical and intuitive.



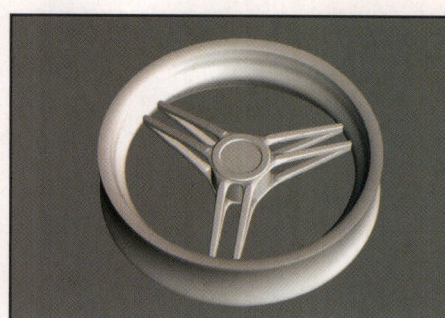
11 Using the Polygon Draw tools, you can create a couple of profiles for the wheels and tyres. You'll need to work from the top view while you draw your shapes: use the grid to align points accurately. The 3D Tooltip (accessible through an icon on the interface) has an excellent tutorial that fully demonstrates this process – you can also refer to the profiles.scn file on the CD. Apply the Lathe tool to the splines to create your objects.



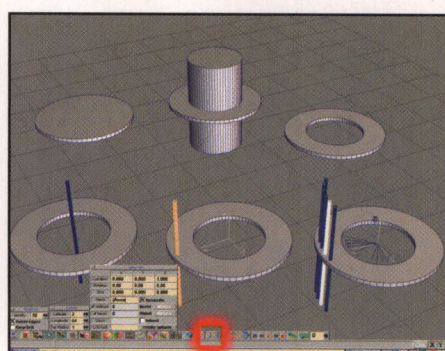
12 To create the wheel spokes, start with a six-sided cylinder scaled to fit within your wheel rim, then divide it another two times using the Quad Divide tool. Work around the cylinder, selecting vertical rows of faces and sweeping them until you have a spoke pattern. Now scale the object vertically, making the spokes about half the required thickness, as we'll be applying a bevel in the next stage.



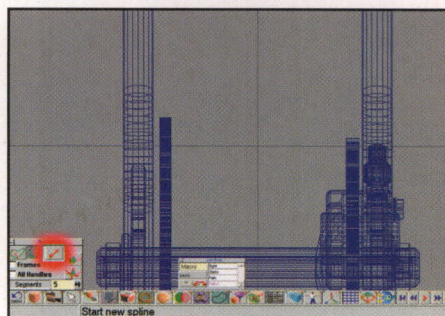
13 Select the end points on your spokes and move them downwards, angling them. Apply a bevel to each of the spoke faces. Clean this object up, removing any superfluous faces and edges using a trick known as a 'remote Boolean'. Load a cube and position it well away from your object. With delete edges enabled in the Boolean properties, subtract the cube from your spokes.



14 Arrange all the pieces of the wheel and glue them together. Then use the Move Down in Hierarchy tool to edit individual components. Select one set of spokes, and click on the NURBS object icon. This smooths the object but it'll greatly increase the polygon count, so use it sparingly, and only apply it when you render. Clicking on the icon will toggle the smoothing on and off.

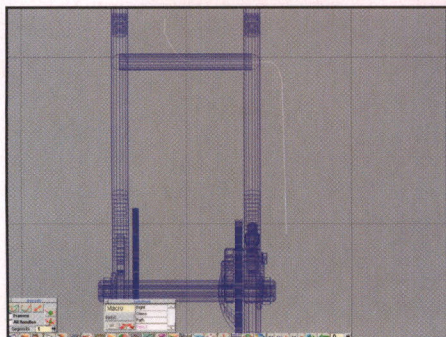


15 Make the brakes using Boolean subtraction. A plain disk is the simplest to make, as it requires just one subtraction. A drilled disk is made in a similar way, but with a slight twist. Position the drill cylinder, and then click on the Axis tool. Move its axis to the centre of the grid. Select the object (not the axis), then copy and rotate around the new axis (see full-size image on the CD for further details).

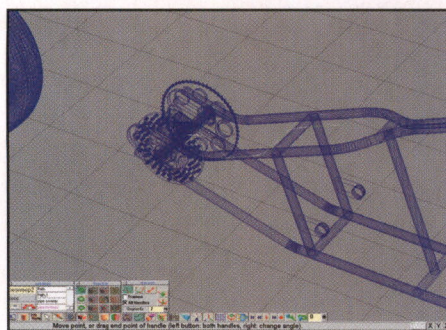


16 Now we'll look at the Macro Sweep function. This sweeps an individual face of an object along a pre-defined path, which we can then store in the paths library. Begin by clicking on the Spline Polygon icon and, in the Draw Path panel, select 'Start new Spline'. We'll use this to create a pipe; the same method is used for the exhaust, handlebars, cables etc. **>>**

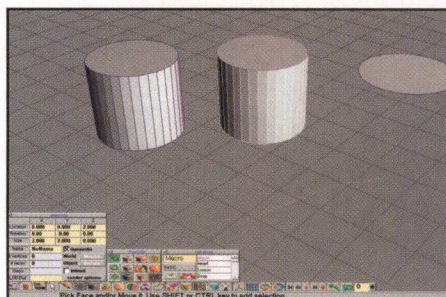
TUTORIAL



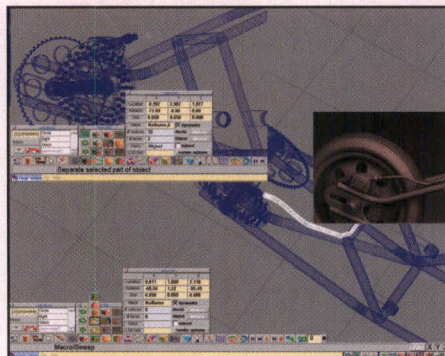
17 In top view (with the grid turned off to avoid the spline points snapping to the grid), draw the first spline point. Set the segments to 7, to give some nice smooth curves between our spline points. Complete the rough shape of the cable by continuing to add points. Make sure you finish with a straight section: this is easily achieved by setting the final point's segment value to 1.



18 Insert the path into the Path library and, without exiting the draw path mode, select the Point Move tool in the Path panel. Now you can select points, move them around and adjust them using the handles. Experiment here, and take your time when making a smooth curve. If you want them to sweep in several directions, change your viewpoint (or open a new one) and align the points in three dimensions.



19 With the path saved to the Path library and renamed, delete the original path (if it remains in the workspace), then load a cylinder. Scale it to the diameter of the pipe and in point edit mode, select the top face. In the Point Edit panel (right click on the tool) click on the Separate Selected Part of Object icon; delete the original cylinder, leaving just a disk.

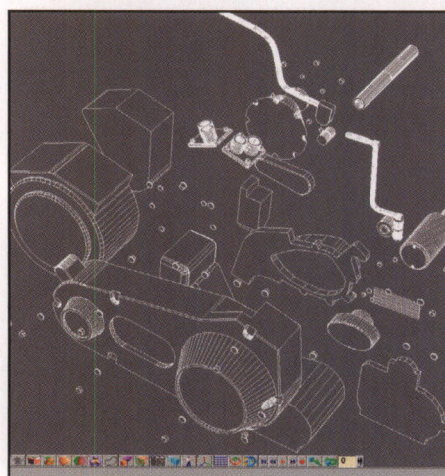


20 Select one face of the disc, then click on the Macro Sweep tool. From the Path library, select your pipe path that will attach itself to your disk object. Enable 'bend' in the Macro Sweep panel to ensure your disc follows the path's contours. Click on the Macro Sweep icon again to complete the pipe. Always save the scene before you sweep, as this process can't always be undone.

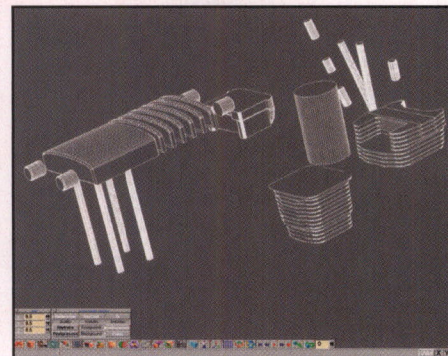
>PART TWO

Piecing your bike together

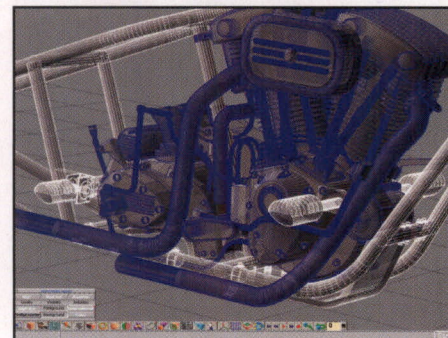
Now comes the fun part – it's time to assemble your bike from its carefully constructed parts



21 The rest of the bike is built using the methods we've already looked at in detail, so let's take an overview of the various sections, rather than concentrating on individual components. The bottom half of the engine consists of primitives and freehand polygons (as with the tyre profiles), which are then swept and bevelled. Ensure you have plenty of reference material available showing all angles to help create accurate models.



22 The cylinder cooling fins are all created using the Draw Polygon tool (note their different sizes and shapes). Once you've drawn one profile, it can be edited using the Point Edit tools. Use the Macro Sweep tool to create the exhaust, and any cables, the same way as for the handlebars. Adjust the curves with the path's handles for a natural look.

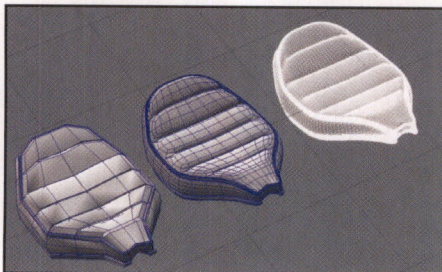


23 With the engine and its ancillaries completed, align it with your frame, making any adjustments needed. Model the brackets to mount the engine, and add either a belt or chain drive to the rear wheel. If you want a chain drive, consider buying the vcTek plug-in (see resources and links document on CD): it's designed for this type of work.

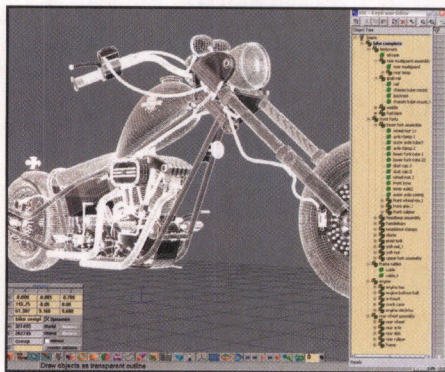
EXPERT TIPS

TO PROTECT AND SAVE

>> Keep your work organised and save regularly. Nothing's more frustrating than losing your recent work should the software fail. Always save your scenes before performing Boolean operations. Due to their complexity they often cause problems. Saving individual objects means they can be re-imported into scenes, so you can remove complex sections from your workspace to free up resources. When your scenes are complete, use the archive function to save all the relevant files to one directory for future use.



24 The fuel tank and seat were created using *ThermoClay* (see Expert Tips) which creates a smooth object from a simple mesh. They can be made without plug-ins, using point editing. Starting with your basic shape, smooth, quad divide and move the points until you have the right shape. The NURBS tool used on the wheel spokes can be used.



25 Once the bike's components are in place, save them as both a scene, and as objects. The Keyframe editor lets you see all of the scene components, which is why we named our objects. While organising the scene, keep this open: you can move objects into and out of groups here without ungluing them.

EXPERT TIPS

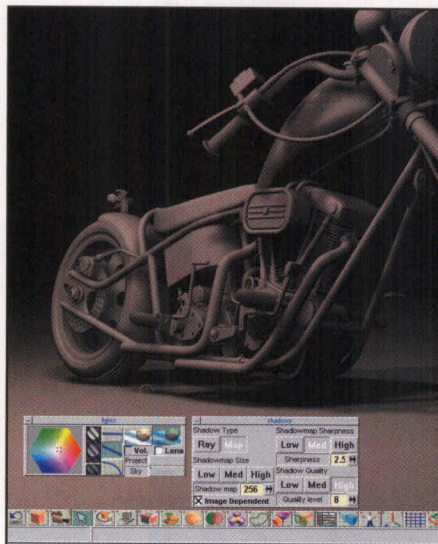
WE ARE FAMILY

>> As with all 3D software, there's a huge online community providing support for *trueSpace*. Don't be afraid to ask questions: Caligari's own community forums are a great place to get answers from experienced users (I've included a list of useful links with the tutorial documents on the CD). Use plug-ins to expand the software. Top of my recommended list are *Thermoclay* (a commercial plug-in which adds Subdivision Surfaces to the modelling tools), and *Shader Lab* (another commercial plug-in for creating custom shaders - but there is a free version). As your use of the program increases, you'll realise which plug-ins you need to improve your workflow.

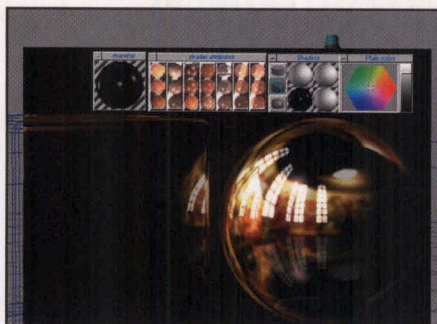
>PART THREE

Lighting and rendering

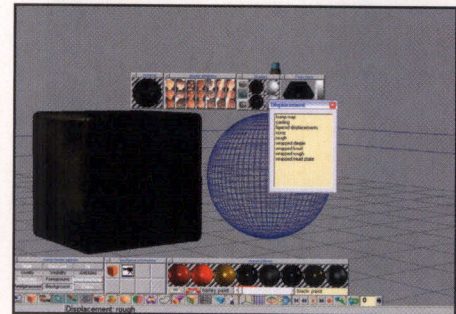
Shed some light on your magnificent motorbike model with these final rendering steps



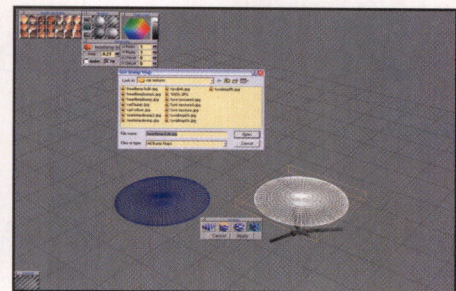
26 Right click on the Render icon to open the scene render options. Select Foreground > Environment, and right click to select a file. This is our sky. Select one of the lights in the scene, right click to adjust its parameters, and enable Shadow Casting. Repeat this for all the other default lights, or add your own custom lighting.



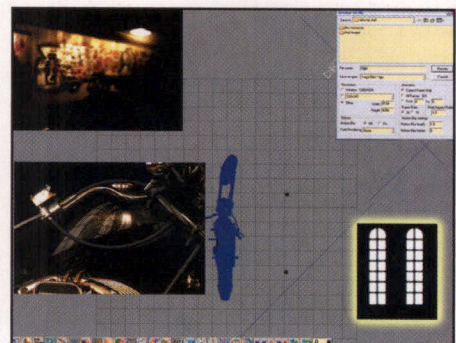
27 Open the Material editor, and take a look at the panels and options. To create a chrome material, start with the Caligari Phong shader, and increase its shininess and reflection. Also reduce the diffusion and ambient glow values, as these will make the shader appear unnaturally bright. Note the material sample appears black, as reflections aren't calculated in the preview.



28 Repeat this process for all other shaders. Perform an area render each time you test a new material, to ensure it reacts well with other materials. Work on simple objects while creating textures (your render times will be quicker). Save your shaders in the Material library and ensure you name them. Add roughness using the bump or displacement channels.



29 You can also use image files in the displacement channel. Here, apply an image to a glass texture to create the Bump map for the headlight. Create a new Caligari Phong material. Use the transmission slide to increase transparency; in the bump channel, select Bump map, and navigate to the desired image. Once you've applied the materials, use the UV projection tools to adjust your Bump map's position.



30 Here's how I set up the final scene. The camera was loaded with the free *View2Cam tSX*, which matches your viewpoint. Using a camera in the scene lets you use post-process effects, such as depth of field. To render the scene, open the render properties; select 2x antialiasing, to remove rough edges. Now click the Render Scene to File icon. Complete the dialogue, and select render. ■



1994



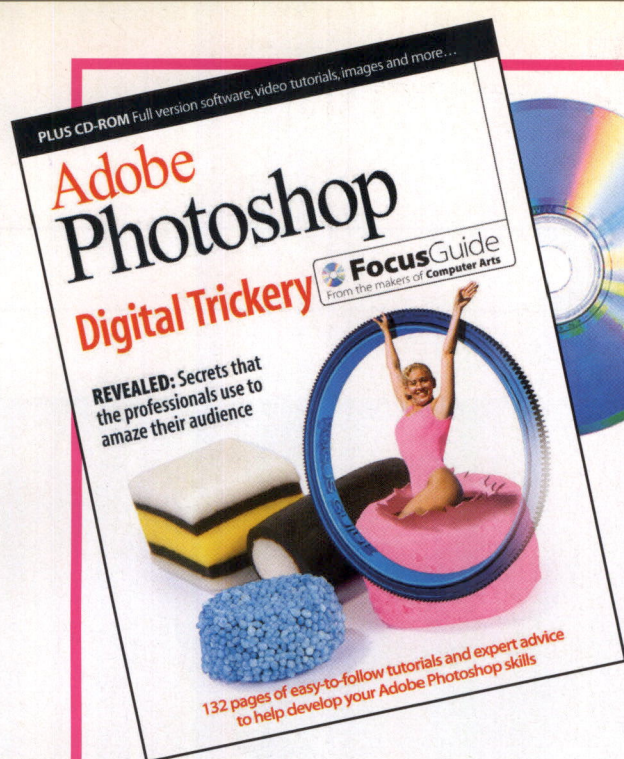
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2004 trueSpace7

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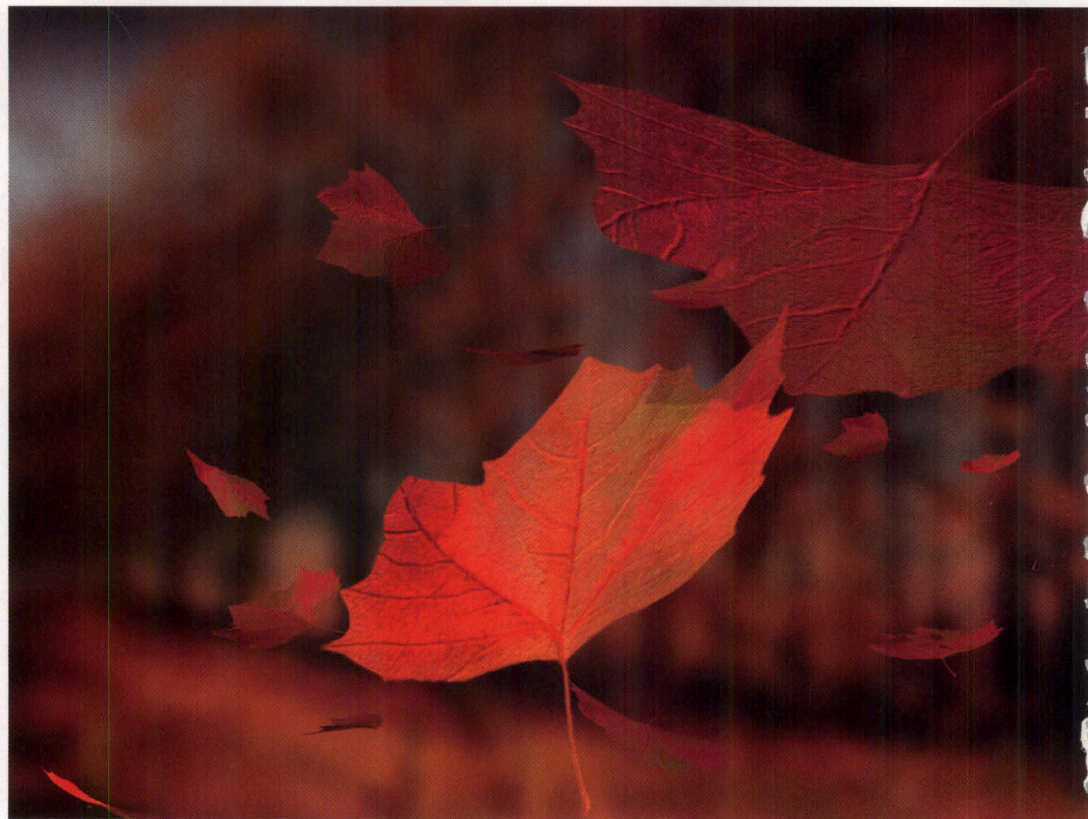
Q&A

RIGHT Using Maya's dynamics creation and runtime rules, you can make realistic autumnal scenes like this without taking leaf of your senses...



ON THE CD
Full-size screengrabs and supporting files for this Q&A

Maya
by GARY NODEN



"I'm animating lots of autumn leaves falling from trees. How do I get them to move like they're being blown about by the wind?" **BERNARD LAVERY** | via email



More often than not, objects that look as though they're dynamic in nature are, in fact, objects that are lovingly animated by hand (see the Maya Q&A in issue 60). It's not that they can't be created using dynamics, it's just not always the best solution. But there are some

things that are much easier to animate with dynamics such as rain, snow, leaves and so on. And this is where particles come into their own.

Not only can you apply dynamic forces to particles, but you can also give them individual attributes which apply different sizes, different lifespans and so on. You can even increase or decrease these values over each lifespan too. You can then replace the position of the particles with objects that also apply to the rules, giving them the sizes and rotations, which make their movement more random and, therefore, more realistic.

This is done by creating rules which govern the birth and action of the particle over its entire life. These are called

Creation and Runtime rules – you can get to them (and set their values) in your particle's ShapeNode Attribute editor.

BREAKING THE RULES

Many attributes are already in the particle by default – velocity, position and so on. If you want a particle to have a random colour value at birth, select it, open up the Attribute editor, scroll down until you reach the rolldown labelled Per Particle (Array) Attributes and click on the Color button at the bottom. Add the Per Particle attribute (rgbPP) from the pop-up window, then right click the rgbPP that appears in the Attribute editor. Select Creation Expression and the Expression editor will open. This is where we put rules into particles. If you type in 'rgbPP = <<rand (0, 1), rand (0, 1), rand (0, 1)>>;', your particles will have random red, green and blue values. If you put this same rule into one of its Runtime Rules (before or after dynamic influences, such as gravity or turbulence) the colour changes every frame. But Maya also allows you to use colour ramps for most attributes. The best thing, though, is that we can create our own rules.

Particles can be replaced by geometry, and this geometry can be influenced by the particle's rules. If you've added the attribute radiusPP – by clicking on the General button in the Attribute editor and adding it from the particle attribute list (and made a Creation Rule for each particle: "radiusPP = rand (1, 2);") – your instanced geometry can have this as the basis of its scale.

So here's how you do it: when you create the instance, you pick the geometry you want to instance, and then open the option box (Particles > Instancer (Replacement) > Option Box). You should be able to see your object in the Instance Objects window and, just below this, is a check box saying Allow All Data Types. Check this, or you won't be able to see your radiusPP rule. Below are a few options for the particles that can be connected to the instance. In the General Options rolldown click on scale, and assign radiusPP to it. This gives your instanced geometry the scale values from each particle they replace.

Let's put this into action by opening the supplied scene of falling, instanced leaves on this issue's cover CD. With current per-particle attributes, and one we create, we'll influence the particle's motion.

GARY NODEN

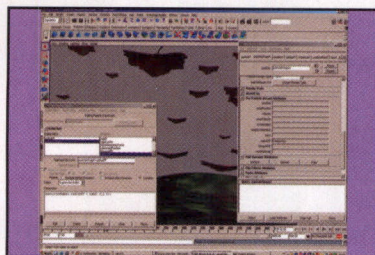
3dw.qanda@futurenet.co.uk



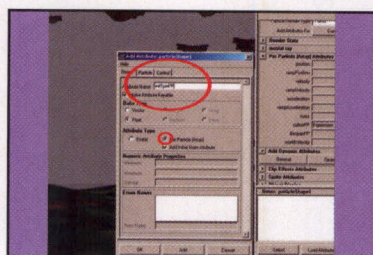
Gary Noden is Head of 3D at 422 Manchester. He has been accused of being good at his job on several occasions, but he still finds it very hard to believe. Especially when he knows some of his clients lie far too well...

STEP BY STEP: LEAF IT OUT!

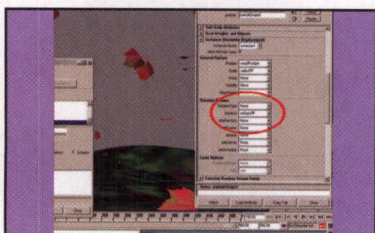
Use creation and runtime rules to create a more realistic, random motion for your falling leaves, in the six steps below



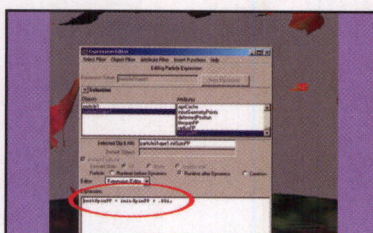
1 Select particle1. Open the Attribute editor. In the particleShape1 tab, scroll to the Per Particle Array Attribute rolldown. Right click on the radiusPP attribute. Select Creation Expression. In the Expression editor, type 'radiusPP = rand (.5,1.5);' – a semicolon indicates the end of a statement. Click Create. Play your animation. Your leaves are now individually sized.



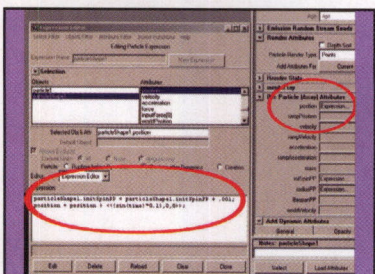
2 Reopen your particle's Attribute editor. In Per Particle (Array) Attribute, click General. In the Add Attribute box, select 'New tab', set Attribute Type to Per Particle (Array) and type initSpinPP. Click OK. Right click on the attribute initSpinPP. Select Creation Expression. RadiusPP expression should appear. On this new line, add: 'initSpinPP = rand (0,359);'.



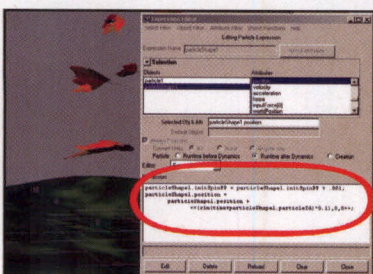
3 Scroll up to the Instancer (Geometry Replacement) rolldown and open it. Check 'Allow All Data Types' and then move down to Rotation. Select it, and select the initSpinPP attribute from the list. If you rewind your animation and play it now, all your leaves are rotated differently, but they're not rotating yet.



4 Go back to the Per Particle Array Attributes rolldown and right click over initSpinPP. Select Runtime After Dynamic Expression. This time, type: 'initSpinPP = initSpinPP + .001;' Now, after the initial value is calculated, it will increment by .001 per frame, rotating the leaf during the animation.



5 The leaves still look as though they're falling, not floating. So, in the Attribute editor, open the Runtime After Dynamic Expression for position, and type: 'position = position + <<(sin(time)*0.1),0,0>>;'. This adds a Sine wave motion between -0.1 and 0.1 to the X position of the particle; the Y and Z values have no change by adding 0. Notice that the line above has expanded to its full particle name, too.



6 The motion is still too similar. In order to add some variety, we can use each particle's individual identification number (or ID) to change the time for each particle. For example, particle0's time value would be time+0, particle1's time value would be time+1, and so on. Change the '(sin(time)*0.1)' to '(sin(time+id)*.01)'. Edit and reload your updated rule. Now it'll look more realistic at playback.

MAYA TIPS

No need to take a walk in the woods to get inspiration. These tips will add more magic and sparkle to your particles

01 Mathematical functions like Sine are great ways to add motion to your particles, but it doesn't have to stop there. You can use Sine, Cosine, Random and other mathematical functions (such as Noise) to animate all sorts of attributes, be they in particles or in objects. If, for example, you create an expression for the X position and the Y position of an emitter: emitter.tx = sin(time); emitter.tz = cos(time); this makes your emitter move on a circle in the XZ plane, giving out particles as it goes. Experiment with a variety of different things and you can get some weird and wonderful results.

02 Colour Ramps are a great way to edit variables of particles, and they're really simple to use too. Predominantly these are used for colour on software-rendered particles, allowing you to add colours to your particles to recreate a variety of different effects. You create an rgbPP attribute by clicking the colour button in your particles' Per Particle Array Attribute rolldown and then, instead of right clicking and connecting to an expression, connect it to a ramp. This won't automatically pop up, so you have to click on the link that appears in your rgbPP attribute. Edit your colours and make sure your particles have a lifespan – you can do this as a constant higher up the Attribute editor, or as a lifespanPP expression – and then run your animation. If you've flagged Hardware Shading in your View Pane, you should see your particles change colour over their lifespan.

03 Particles are for life, not just for Christmas, but in commercials you'll find that the season to be jolly is when your knowledge of particles is most put to use. Everybody loves 'fairy dust' come the holiday season. Instancing stars and applying a bit of random spin and featherlight gravity can work wonders to make an animation more magical.

For quick fixes to Maya problems, post your questions in our online forum:

www.3dworldmag.com/Maya

FEATURE

Pro tips

Real-world lighting

Lighting know-how is vital for realistic scenes. Here's how to use everything from depth and balance to gobos and cookies to bathe your work in brilliance

Recently, I finished a project for a major airline carrier. When the manager saw the exterior animations, he asked me why more people didn't understand the importance of lighting. He has a point. From modelling to texturing, rigging, animating and, of course, lighting, there are so many facets to 3D image creation that it's difficult to maintain focus and expertise in each area. All too often, though, lighting isn't a major concern for artists.

If you talk to any traditional filmmaker, they'll tell you that lighting is crucial to every shot. It can change the mood, the contrast of the characters and even evoke emotion in the viewer. In other words, lighting is used for much more than just illumination.

The collection of tips in this feature will focus on everyday 3D use and will use three separate scenarios as examples. These should prove to be helpful no matter what you're working on and they'll be applicable to any project, using any software.

DAN ABLAN
www.3dgarage.com



Dan Ablan is President of AGA Digital Studios in Chicago and co-founder of 3D Garage.com. He's written many books on computer graphics, including *Inside LightWave 8*

The first set of tips will concentrate on an outdoor scenario where we aren't going to use radiosity to achieve a bounced or diffused lighting effect. Instead, we'll show how you can achieve the same look with standard lighting. The second set of tips will concentrate on a full interior of an aircraft, while the third will focus on a specific close-up scene.

When you're following these tips, remember that lighting in 3D is very similar in just about any program and it's important to develop your eye to recognise the details in whichever software package you're currently using.

The lighting differences between programs are mainly in terms of naming conventions, such as point or omni lights, which essentially produce the same results. Other variations are seen in radiosity capabilities and availability, as well as specific render choices.

START WITH THE ENVIRONMENT

It's best to begin working with lighting once your environment is in place. This could be a simple backdrop, stage or exterior environment, either 3D or image-mapped. Lighting isn't just about pointing a white light at a subject and rendering – it's about allowing the user to get a sense of reality: and in reality, the surroundings you see have a very important effect on the lighting you apply.

DECIDE WHAT YOU WANT

Before going into any project, decide how you're going to approach the lighting setup. Sure, you can always just change



a light source, adjust the settings and see how it looks, but by planning out your scene, you'll save time later. For example, lighting and textures go hand in hand. If you're aiming for a bright, sunny day, your model's textures might need to have their values adjusted.

LIGHTING ISN'T JUST ABOUT POINTING A WHITE LIGHT AT A SUBJECT AND THEN RENDERING – IT'S ABOUT ALLOWING THE USER TO GET A SENSE OF REALITY

By the same token, if you're setting up a night-time evening shot, perhaps down a rainy city alley, then the surfaces on your objects will need to have their reflectivity, specular settings and other variables adjusted accordingly.

THREE-POINT LIGHTING AND MORE

While many books (including my own) point out the benefits of using a standard three-point lighting setup in your scenes, try to think beyond that. Conventional lighting setups are a good start, but you shouldn't end with them. If you feel that a particular area of your scene is too dark, add an extra light – the choice is yours. Most 3D applications enable you to choose which surfaces or objects each light will illuminate.

THINK NEGATIVE

As they say, it's good to think positive. However, with 3D projects, you should think about using negative lights. >>



BALANCING LIGHT

To maintain the right lighting in the environment when you're composing an exterior daytime shot. Certain areas, such as the bottom of the plane, are often too bright



USING DARK LIGHT

When most of the lighting in your scene is just right but a certain area is too bright, try adding a negative or dark light to pull the light away



FEATURE

Often called 'dark lights', you can apply this effect to areas of your scene that are too bright. For example, take a flying aircraft, which is well lit overall. In order to get the lighting just right on the top of the plane, the bottom becomes too bright because of the reflections. If you decrease the reflection properties, the bottom area is no longer too bright, but now

BY ADDING AN ATMOSPHERE TO YOUR SCENE, SUCH AS FOG, YOU CAN BLEND YOUR OBJECT INTO THE BACKGROUND FOR A MUCH MORE REALISTIC RENDER

the rest of the plane is improperly lit. The solution is to leave the reflections alone and then add a negative or dark light casting onto the area in question. This dark light will pull brightness away from your scene.

ADD AN ENVIRONMENT

Lighting in 3D involves more than just adding a few lights with intensity and colour settings – it's a creative process, and part of that process means you need to understand that a key variable to achieving quality lighting is to add an environment. Lighting a subject on just a black background doesn't complement your lighting. While the object might be highly detailed, it will look better when it's rendered within a scene. This can be a simple photographer's backdrop or something more complex, with other objects and reflections.



USE ATMOSPHERE

In the past ten years, I've only rendered a handful of foggy scenes, such as a graveyard and a rainy street. But did you know that using fog can give your lighting the added enhancement it needs? For instance, at times you're going to render objects with a backdrop image. In most cases, your 3D object will be much cleaner, brighter and sharper than the background – it's just the nature of the beast. By adding an atmosphere to the scene, such as fog, you can blend your object into the background for a much more realistic render.

AVOID HOTSPOTS

A dead giveaway of computer-generated images is the overabundance of hotspots. These are the shiny areas of specular light that appear on an object. If you look around in the real world, even with multiple light sources, the brightest light is normally the one creating the hotspot.

In the world of 3D, adding more light often means more hotspots. Most programs enable you to diffuse this effect or turn it off all together, and the other benefit of this is that you can use a standard light as a reflector.

CREATE A PERFECT BALANCE

As a rule, I always instruct people to balance reflection and diffuse values to about 100. However, there are times when the lighting needs to be set in such a way that the diffuse level for your surfaces needs to be lowered. How low you set this depends on the scene. The shots below show the interior of



LEFT

Simply lighting and rendering an object over a backdrop often results in a 3D object that's too sharply focused to match the background scene

BOTTOM LEFT

Adding an atmosphere to your outdoor scenes helps to blend the lit 3D objects with any background images



TOP RIGHT

Area-type lights are used to obtain the effect of a bright white light entering the windows of an aircraft. They allow for soft shadows, while their intensity is set to about 1,000 per cent, leaving the surfaces of the objects washed out

RIGHT

By decreasing the amount of light that each surface accepts, the objects and lighting are now perfectly balanced



an aircraft. To simulate the hot, bright light coming through the windows of the plane, intensity values are set upwards of 1,000 per cent, with a light falloff. This type of lighting is ideal for indoor scenes, and by using an area-type light with raytraced shadows, very realistic results can be achieved. However, what you might find is that your objects are completely blown out, and this is where the low-level diffuse comes into play. Tell your objects to only accept about ten per cent of the light source and you'll get the desired effect.

SOFT LIGHT WINDOW TECHNIQUE

When you work with interiors and have light coming through windows, always use a soft shadow if you aren't applying radiosity. I find that the render times aren't so great, but the results are worth it.

If you're creating a shot that's concentrated on a subject, consider using a 'gobo' or 'cookie' on the light. What's cool about this technique is that a simple black and white image changes the look of your render. If you're using soft shadows, be sure to blur the image you're using as a gobo or cookie. This saves render time as well, because you don't need to add geometry for the windows to cast a shadow.

FRESNEL WHEN POSSIBLE

Not every 3D program has the option to use Fresnel shading, but if your application does, give it a go and you'll be able to add some realism to your scenes. Many people might assume that using a Fresnel shader is nothing more than a



surface setting, but it's really all about the lighting. A Fresnel shader will change the way your surface reacts to light. For example, a glass window is very reflective. Think about it outside, perhaps in the form of a car windscreen. Look at that window from an angle and you'll see that it's nearly 100 per cent reflective. However, by changing your vantage point and looking at the window straight on, you'll see that it's not

WHEN YOU WORK WITH INTERIORS AND HAVE LIGHT COMING THROUGH WINDOWS, ALWAYS USE A SOFT SHADOW IF YOU AREN'T GOING TO BE APPLYING RADIOSITY

nearly as reflective as it was. You can achieve this effect in 3D by using a Fresnel setting, and you can use it for metals, plastics and lots more.

ANISOTROPIC

To this day, I still can't pronounce that word, but I know what it means! Take a look at the metal around your office, or perhaps on the wheel rim of a car. Notice that the light hitting it isn't always a perfectly round specular highlight. Every surface reacts differently to lighting, and some, such as metals, have a non-typical hotspot. If your 3D application has Anisotropic settings (a texture filter setting), apply those to your surfaces and you'll greatly enhance your lighting. You can also add additional levels of specularity. ■



SOFT TOUCH

Lighting a concentrated area indoors benefits from the use of soft shadows, giving your scene a far more realistic feel



WAITING FOR GOBOS

Using a gobo or cookie on the main light source will enable you to take your render to the next level, and it won't make the image distracting

Q&A

RIGHT Getting believable cloth solutions (including animation) has become much easier with C4D's new Clothilde



ON THE CD
Full-size screengrabs and
supporting files for this Q&A

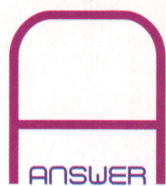
Cinema 4D

by ADAM WATKINS



"Everyone seems to be excited about C4D's new cloth algorithm. How does it work, and how can I use it to the best of my abilities?"

LAURA MUNDAY | via email



Like hair, creating realistic cloth used to be an unthinkable task in 3D. There were lots of solutions to try and get a believable cloth feel and movement (bones, deformers, and so on), but they all seemed to fall a bit short. In recent years, however, most 3D packages have started to up the ante by creating leaner, meaner and more effective cloth solutions. In R9, Maxon unleashed Clothilde; its newest attempt at cloth simulation. Although it's not part of the C4D dynamics system, it still provides some very powerful – and simple – solutions to create believable cloth.

With Clothilde, you can make cloth react to wind of varying turbulence, and it'll respond to other objects too. The cloth is conscious of itself, and can make use of Self Collision. Even more fun is the ability to use Clothilde to create fabric that breaks and tears when objects strike it at certain speeds. It can have varying degrees of flex, bounce, volume, and pliability. The cloth in Clothilde is a versatile and powerful tool. It's so versatile, that we won't really

be able to delve into it properly here. But keep an eye out for follow-up Q&As in future issues of *3D World*, where you'll find further tips on how to get more mileage out of this new tool.

WORK CLOTHES

Clothilde works with the standard C4D workflow paradigm: tags attached to objects that define what they are, so the user can understand what functions to use. You can start with any polygonal based object (you'll need to make parametric primitives editable). Right click on the object and select Clothilde Tags > Cloth from the drop-down menu. Note that there's also an option to select a Collider (Clothilde Tags > Collider) in the same menu. Colliders are objects that are used when you wish to make something actually interact with your cloth objects. Defining which objects are going to interact with your cloth saves processor cycles, as the calculation is much simpler.

Once you've defined an object as either cloth or collider, create a Cloth NURBS object that parents your cloth object (Plugins > Clothilde > Cloth NURBS). This acts much like a

HyperNURBS object, in that it subdivides the surface to give a final rendered version that appears much more high-poly than the version you might be working with.

By clicking on the Cloth tag in the Objects Manager you can set up all sorts of global influences under the Forces tag. You can define the direction, strength and type of wind; you can also tweak gravity and decide to what extent the wind affects the cloth; you can even choose how much the cloth 'gives'. There's also the ability to cache complex animations, allowing you to create a version of the cloth's movement that plays in your editor along with your animation. In the Dresser Tag, you can help *Cinema 4D* understand how cloth will fall across a body (if you're going to use it for clothing), and the Effects tab lets you define where the cloth tears. This enables all sorts of effects such as a flag being ripped from its pole, or bullets tearing through a banner.

Clothilde's main strength is that the test setups are fairly quick to create, so you can tweak to your heart's content. The best way to learn this tool is to setup a test scene (which we'll do in the step-by-step walkthrough on the right), and experiment away.

ADAM WATKINS

www.cgauw.com



Adam Watkins lives in Texas, where he is the Director of Computer Graphics Arts at the University of the Incarnate Word. He is also the author of several books on *Cinema 4D*, *Maya*, and other 3D subjects

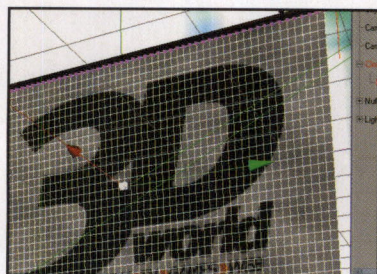
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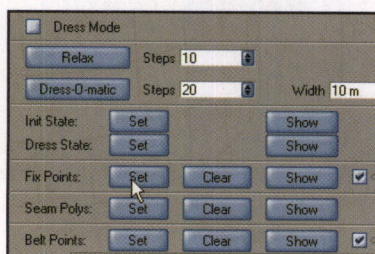
#075

STEP BY STEP: CLOTHES SHOW

The steps below show you how to make a rather attractive banner. Now all we need is some sort of 3D World anthem...



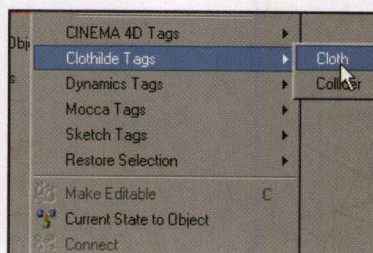
1 Create or convert any shapes you want to become cloth, into a polygon-based object. This can be a pattern of clothing (front and back), or it can be something as simple as a plane. Make sure that you don't have Parametric Primitives, as you'll need to be able to select objects on a point-level basis.



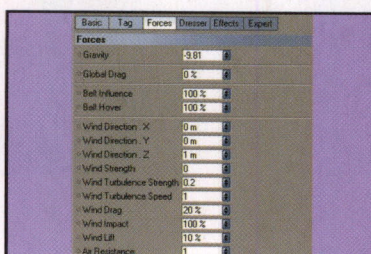
3 In order to create this scene, we want to be sure that the banner doesn't fall – we need to attach it to the bar. To do this, switch to Points mode and select the points across the top of the banner. Select the Cloth tag and, in the Attributes editor, click on the Dresser tab. Then click Set in the Fix Points section. This will pin the points into 3D space.



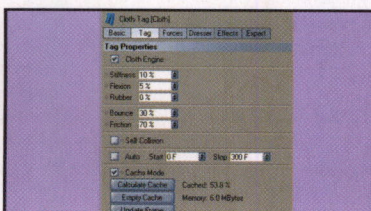
5 If you turn the values for Turbulence up, click on the Effects tab and activate the Tear option. You can define how much the cloth must stretch before it rips. This can be tricky when you're working with a windy setup, as you can end up with undesired rips. However, for things like objects passing through cloth, this is incredibly handy.



2 To define your polygonal object as cloth, you just need to add a Clothide Cloth tag. Right-click on the object in the Objects Manager and select Clothide > Cloth from the drop-down menu. This will create a new tag for that object. To make adjustments to how this cloth behaves, just click the tag and make the adjustments in the Attributes editor.



4 Still in the Cloth tag's Attributes editor, select the Forces tab. Notice that the default value for Gravity is already defined. To make a banner blowing in the wind, set the Wind Direction for X and Z to 0.3 and 1 respectively. Finally, turn the Wind Strength to 3. If you're feeling adventurous, you can play with the Turbulence Strength and Speed.



6 Before you render, you can get a good idea of how your settings work by creating a quick cached solution. Select the Tag tab in the Attributes Editor. At the bottom of that area is a Cache Mode area. Click on Calculate Cache. This will take all the data you've entered and figure the cloth solution. Although this takes some time, after the solution is cached you can play the animation at near real time, depending on your hardware's capabilities.

CINEMA 4D TIPS

Read the tips below to make sure your cloth is of designer-label quality

01 When you've calculated the cache, the Cloth tag in the Objects Manager will have a little 'chip' over the top of it. When you make significant changes to the settings of the Cloth, this tag will turn yellow. But this isn't always a reliable way to see if you need to recalculate your cache; you'll need to keep track of that yourself. In general, every time you make tweaks to any of your settings within the Cloth tag, make sure you re-calculate your cache. Otherwise you'll end up with a rendered project that doesn't match the preview you're seeing in your Editor Window.

02 Note that when you create a Cloth NURBS in the Object Properties section, you can define how many subdivisions the Cloth NURBS object will affect in your polygonal cloth object. You have the option to actually add thickness to the object. This can produce some excellent results that can add an extra layer of realism to your rendered project.

03 As always, lighting and textures make a big difference in the believability of your final output. Although this Q&A shows you the basics, the final look is up to you as an artist. Make sure you keep in mind exactly what kind of cloth you're working with and make good use of Bump and Specular to get the look you need. You don't want to end up with fluidly moving polygons that look like wavy plastic...

For quick fixes for Cinema 4D problems, post your questions in our online forum: www.3dworldmag.com/c4d

Q&A

RIGHT Animating a gingerbread man requires the same approach as any other character, even if he has no facial features



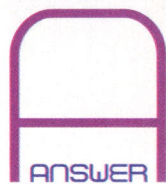
ON THE CD
Full-size screengrabs and supporting files for this Q&A

XSI
by **OLA MADSEN**



“I’m trying to set up a gingerbread man so I can animate him, but when I try, the geometry goes all weird. Can you help?”

HANNAH PARKER | via email



While memories of this year’s holiday season start to fade fast, let’s cling on to that ‘good will to all men’ feeling a little longer. After all, Santa only visits those who have been good during the entire year. So this means that we still have to behave ourselves for another eleven months or so. There’s an old saying that claims that eating gingerbread will make you a nicer person. Whether this is actually true or not is open to debate: we’re not taking any chances where future presents are concerned, however, so this virtual gingerbread should serve as extra precaution.

When planning this project, you could quite easily come to the rash conclusion that a quickly drawn and extruded curve ought to do the trick. Unfortunately, this isn’t entirely true, as this technique has a crucial flaw. Looking at the geometry produced by a curve extrusion, the resolution appears to be well laid out and sufficient for a smooth deformation – as long as it’s viewed from the side. View it from any other angle, and you’ll see that the front (and

back) of your gingerbread man is created by a single polygon. You can raise the tessellation by changing the Method (and playing with the sliders) in the Property Page editor, but the result will neither be the clean nor optimised mesh you want.

DEFORMED GINGERBREAD MEN

When building your models, remember that an object will only be able to deform accurately where there’s a point or edge. So if we’d like our gingerbread man to be able to grab something, for example, not only do we need to have enough edges running across the hand, but they also have to be orientated along the correct axis. As a general guideline: if the object looks good in a wireframe, then it also animates well. To ensure that our geometry will have this design, we’ll need to build it in the same manner as we would with a more traditional character. While this will take an extra couple of minutes in comparison to extruding the curve, we’ll more than make up for the time loss when it’s time to animate. Although we won’t be using curves for the actual model, it can still serve as a handy reference when

building the geometry. So in this instance, it’s a good idea draw one anyway.

As our gingerbread man is made from dough, he’ll tend to spread slightly when baked in the oven. This will make him smoother and thinner at the edges than at the centre. For this reason, we’ll benefit from modelling him at a low (or medium) resolution, and raising the subdivision level in the Geometry Approximation PPG. Apart from smoothing the geometry, this also softens the deformation when animated, which will suit him rather well. By adding a slight Bevel to Contour, we’ll get a better control of how the smoothness should be distributed.

Although our character might seem quite simple, we still face some of the same problems as we would with a more complex one. While a more advanced character setup goes beyond the scope of this Q&A, you should get a fairly good control of your biscuit with this somewhat simplified setup. As the step-by-step is quite compressed, have a peek at the finished scene on the cover CD if you lose your way. It’s important that you draw your chains at a slightly bent angle in relation to the requested viewport, as this determines how the chain will bend.

OLA MADSEN
www.digitalcontext.se



Ola animates everything from medical treatments to cute furry teddy bears. When not working, he removes the facial features of 3D biscuit people and makes them shuffle round his desktop, begging to be set free

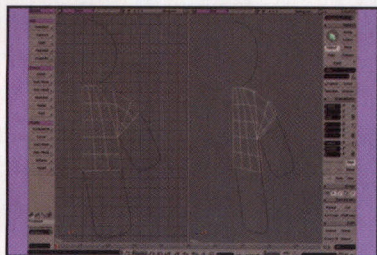
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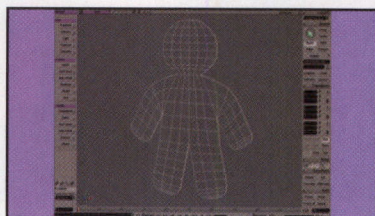
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STEP BY STEP: PIECE OF CAKE?

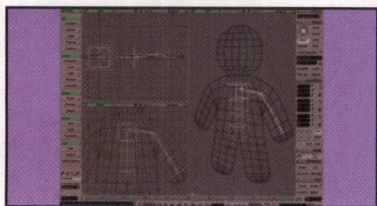
A six-step recipe for successful animation 'baking' – this is the kind of 3D technique that's choc full of biscuity goodness



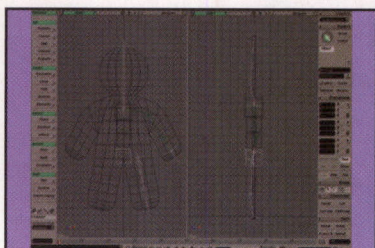
1 Load the gingerbread_profile.scn from the CD. Create a cube, set the U subdivisions to 4, the V to 5 and scale it down to 0.05 along the Z axis. Position it and move the points so they form the left half of the torso, creating a diagonal profile from the neck to the armpit. Select the three polygons from where the gingerbread man's arm will emerge.



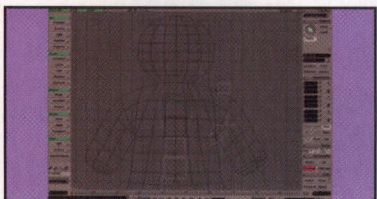
2 Extrude three times, rotating it about -10 degrees each time, as well as lining up with the curve. Extrude another three times until you reach the part where the hand is getting rounder. Extrude yet another two or three times, and scale it along the local X axis to make it smooth. Proceed in the same manner for the leg and head. Then select the polygons on the left side and delete them. Click Poly.Mesh > Symmetrize Polygon.



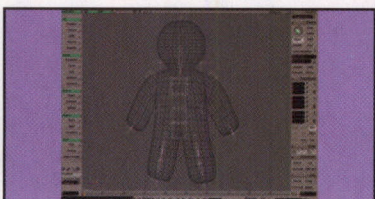
3 Create an Implicit cube with a length of 2, and position it at the centre of the biscuit's hip. Duplicate it, and move it to the center of the chest. Click Create > Skeleton > Create Spine, and pick the newly created Hip and Chest cubes. Set the number of Vertebra to 2, and check the Implicit box. Draw a bone for the shoulder from the centre of the chest to the where the arm begins. In the top view, draw a two-bone chain for the arm, but make it slightly shorter than the actual arm.



4 Align it to the shoulder and the arm of the biscuit. Create a single bone for the hand and position it. In the right viewport, draw a 2D bone from the chest to the neck and to the top of the head. Draw another 2D bone at the biscuit's hip. Click again at the height of his knee and a third time at the foot. In the front viewport, select the first/top bone. Move it to the centre of the leg, and rotate it so it lines up.



5 Create a null, position it on the biceps and make it a child of this bone. Create another null, place it somewhere between the chin and cheek and make it a child of the shoulder bone. Get an Implicit cube with a length of 1, and position it in the armpit; activate Constrain Compensation. Apply a 2 points constrain, and pick the biceps null and one of the lower vertebrae. The nulls should not be included in the enveloping.



6 Get another Implicit cube and position it slightly above and to the right of the shoulder. Apply a 3 points constrain and pick the biceps null, the chin null, and the top vertebra. Make the hand a child of the Arm End effector, and the arm hierarchy a child of the Shoulder End effector. Branch-select the shoulder, cheek and armpit implicits and click Skeleton > Duplicate Symmetry. Select the leg chain, and duplicate this as well.

XSI TIPS

Expert tips like these will help you cope with the heat and thus enable you to stay in the SoftimageXSI kitchen...

01 As your rig improves, you're likely to have a great deal of different bones and objects in the hierarchy, where many of them aren't supposed to be used as actual deformers. So to make it easier to pick the right bones and objects when it's time to envelop your biscuit, it's a good idea to put them into a separate group so they easily can be distinguished in the explorer.

02 The edges of our gingerbread biscuit are likely to be of a slightly darker colour than the centre, because of the dough's sensitivity to heat. This is easily taken care of in Photoshop. Once you're done modelling, take a screen capture, or render an image of the front of your character. Bring it in to Photoshop together with your gingerbread texture, and set the canvas size to match your desired resolution. Lower the screen capture layer's opacity so it becomes semi-transparent. Now, on the texture layer, trace the outline of your gingerbread man with the Burn tool, using a fairly large brush.

03 While I tend to prefer my gingerbread biscuits without glazing or icing, these elements can add to the richness of its appearance. The only two 'ingredients' needed are a curve representing the profile, and a path for it. Since the glazing would be piped on to the dough, the bottom of the profile should be flat while the rest of the shape should be rather round. For a more natural look, you could add a slight variation to the geometry. Keep the U and V Span in the Extrusion Along Curve PPG low, apply a Randomize operator and increase the geometry's subdivision level to give it a smooth appearance. If you intend to animate your character, don't forget to envelope the glazing in the same manner as the actual character.

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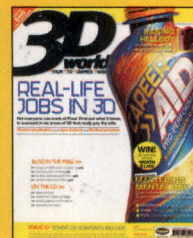
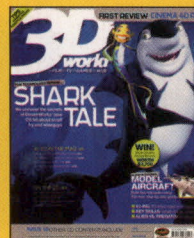
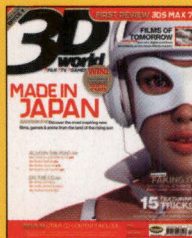
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» ISSUE 60 JAN 2005

Inside *The Incredibles* – discover how Pixar's animated heroics were created; get hired, with our dummy's guide to compiling the perfect showreel; put together a bluescreen studio for under \$100; 12 animation timing tips; create characters in max 7 **ON THE CD** 3ds max 7 (demo) **PLUS** 260MB of supporting 3ds max 7 tutorials

Regular readers will be well aware of the popularity of our back issues: currently, the three below are the only ones left in stock. The fact is, you have to be quicker than a sprinting superhero to secure an edition of the magazine if you weren't able to buy it in the shops. To avoid missing another issue of *3D World*, ask your newsagent to reserve you a copy of the magazine each month. Even better, why not turn to page 28 and take out an annual subscription? This not only guarantees your copy of the magazine every month, but also saves you 40% off the shop price and is delivered direct to your home address. What could be easier?

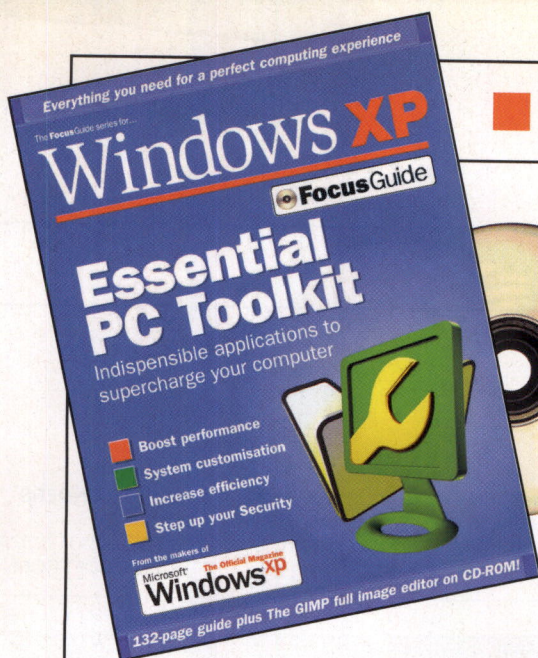


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REVIEWS

Realsoft 3D 5

This 3D all-rounder offers an extensive new toolset, with something for everyone **BY JASON SAUNDERS**

» PC

PRICE

- >> £414* (\$806)*
- >> Upgrade from version 4 £104* (\$201)*
- *Currency conversion
- >> Demo available from the Realsoft website

MINIMUM SYSTEM

- >> Windows 98/NT/2000/ME/XP
- >> 64MB RAM
- >> 100MB hard drive

MAIN FEATURES

- >> Versatile modelling system
- >> Comprehensive set of animation features
- >> Animation by physical simulation
- >> 64-bit raytracing technology
- >> 3D painting system
- >> Visual Shading Language
- >> Post-effects processor
- >> Tools for true 3D composition

[01] Realsoft 3D is a feature-packed solution for 3D animators and illustrators, providing all the tools you're likely to need, from subdivision modelling, Global Illumination, advanced shader creation and IK/FK character animation

[02] This shows the capabilities of the easy-to-use Subdivision Surface modelling, as well as a convincing skin shader created in VSL, where details like freckles and veins can be defined

DEVELOPER REALSOFT GRAPHICS

WEB WWW.REALSOFT.COM

CONTACT INFO@REALSOFT.COM

Unbeknownst to the masses, *Realsoft 3D* has been used by professionals since its original release on the Amiga back in the '80s, and to many, it's a highly treasured program that's been given a new lease of life in version 5.

Realsoft 3D is aimed at both the professional and amateur user looking for an all-in-one, cost-effective solution. It doesn't pretend to be a *Maya* or *XSI*, but it does offer an alternative to *3ds max*, *LightWave* and *Cinema 4D*. While it may lack huge third-party support for plug-in development, it still offers many features as standard that most other packages don't. *Cinema 4D*, for example, has separate plug-ins for its modules (such as *Sketch and Toon*, *MOCCA* and *Thinking Particles*), all of which can be produced using the standard *Realsoft 3D* program at no extra cost.

Plug-ins are required for more advanced feature sets, and these are in development. For example, Dynatomic is developing some advanced soft and rigid body, cloth, particle and hair simulation modules, while Delta Knowledge is creating *Chrono*, a multi-body simulation plug-in. There are plenty of other plug-ins that have been developed for free by the Realsoft community.

Realsoft 3D 5 offers a great alternative to the better-known 3D packages available today. With its flexible architecture, you can delve deep into the program and produce most of the results they're likely to want. With the Visual Shading Language (VSL) at the heart of the material/shader creation, you can produce complex shaders using the intuitive object-based interface with little knowledge of mathematics or programming.

Shaders and post effects can be constructed and applied to objects, particles or as post effects to the final image output. This scalability offers solutions from simple



IMAGE © Pixel Perfect

texture mapping of your favourite models, to common particle effects, to defining your own toon-shader styles.

Subdivision modelling is another of *Realsoft's* strengths, providing a fast and powerful tool for making your wildest model creations a breeze. Global Illumination, skeletons, physical simulations and a high-quality renderer are all part of an impressive list of functions that have been part of *Realsoft* for some time.

OLD SKOOL, NEW FEATURES

There are too many new features to mention here, but rest assured there's something for everyone. The animation interface has been updated, with a new construction stack approach that's easily managed in the choreography window, and users can now stack multiple animation processes on top of others. For example, a car can be animated along a NURBS curve path and a second noise animation choreography can then be added to make it shake a little, as if it's on a rocky ground. It's now possible to add a constraint choreography to make the rear wheels skid from side to side as it struggles for grip on the rocky surface.

New choreography classes (other than the key framer in V4.5) have been added, with *Pose* choreography (for defining static

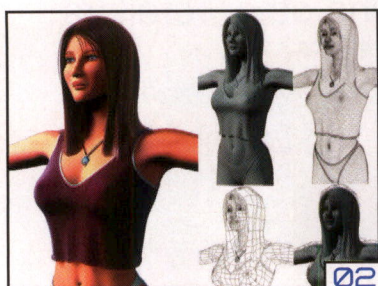
poses), *Noise* choreography (for shaking), *Lattice* choreography (for using Lattice map construction objects to animate other objects), *Simulation* choreography (for physical simulations) and *Script* choreography (to offer even deeper control of all animation channels).

Skeletons are more manageable when creating hierarchal rigs for character animations, and there are new options when using them. There's also a new drag tool and IK construction modifiers, which are aimed at helping prevent feet slippage when setting IK and FK animation poses, and which generally provide more control. All standard features for joint and bone modification are included, and skeletons can be animated using the keyframer or morphing method – the choice is yours.

The UV mapping sets for precise shader and material mapping of even the most complex models is now easier. You can have multiple UV mapping sets on top of each other, all of which are editable and accessed through the Object Selection Hierarchy window.

The post-shading process has been extended to enable you to modify elements such as colours, highlights, reflections, particles, shadow blurring and so on. The system enables you to complete the

IMAGE © Andy Jones



02

IMAGE © Pixel Perfect



03

rendering process and then apply the post effects afterwards, to alter and manipulate as desired. If you wish to change post effects, they can be re-applied without re-rendering the images or animation sequences because the original raw data files from the rendering process have been saved, which is a real timesaver. In addition, there are some new tools for Subdivision Surface modelling, such as Separate, Unwrap, Fill Holes, Duplicate and Mirror for symmetrical objects, and some UV mapping optimisations.

Distributed rendering, too, has taken a leap forward. With the excellent value of unlimited rendering licences included in the price of one user licence, it's now easier than ever to utilise every spare PC you can lay your hands on to get your rendering finished on time. There's also a Public Rendering Service plugged into the same system, which enables you to make your PCs available for network rendering online.

Hair and Fur simulation are two more major upgrades. Based around the raytraced NURBS curve approach, you can define just about any hair-type effect you choose, making your material shader define just colour and specularity, or taking it further by

also defining geometry attributes, as in Tim Borgmann's example below. Hair rendering is fully functional in GI rendering, too.

Particle rendering makes organic shapes such as trees, flowers and snowflakes simple to construct using 1D or 3D particles when raytraced. This is a very memory-efficient way of making complex geometry, without the penalty of heavy rendering times.

Other improvements include import modules for OBJ, Photoshop, Dem and boujou file formats. 3D painting has a new UV surface-shading option if you want to bake reflection or light values to surfaces. Additional modelling and animation functions have also been added and cleaned up to make this a fully packed upgrade.

FIRST-TIME FUN

Although there are undoubtedly enough tools here for Realsoft users to justify the upgrade, it also offers a fully up-to-date package to those new users who may be trying Realsoft 3D for the first time. It is truly a fun program to play with, whether simply modelling and texturing with subdivisions, animating with particles and simulations or combining caustics and Global Illumination to create stunning renders. While the interface has changed very little since v4.5, some say it's intuitive to use and are happy, while others are keen to see a more polished look. It could certainly benefit from new icons and more alternative standard environments for newcomers, however.

Realsoft has clearly dedicated its time to improving the tools and making sure the functionality is in place first, because this is ultimately more important. The introduction of raytraced hair rendering is a welcome addition; it's excellent for creating heads of hair and animal fur, or even grass, across your landscapes. Animating feels easier when accessing the choreography to adjust animated attributes, and Global Illumination rendering is smoother, at lower ray counts.

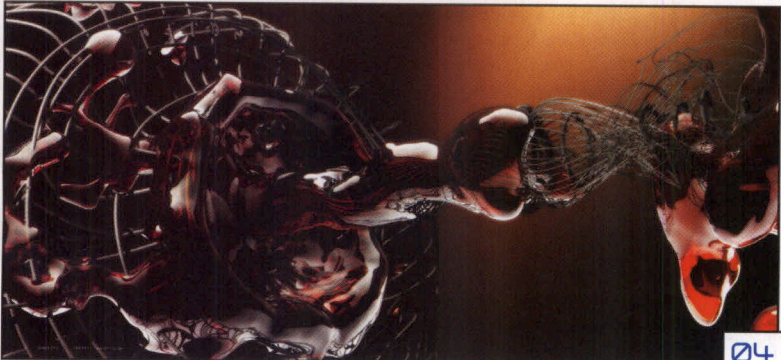
One area that does require further fine-tuning, however, is character animation functionality. While it is better than v4.5, you'll still feel the need for a better workflow and more convincing anchor controls to achieve ultimate control when posing characters. But a character animation module is in development, which will hopefully resolve Realsoft's shortcomings in this area. While we're on the subject of gripes, reflections in Global Illumination

rendering can also be problematic at times, and while a workaround can often be found, this still needs to be addressed.

Newcomers will get used to the tools quickly, and

have a lot of fun with subdivisions in particular. The material shading system is great for beginners, as template shaders can be adapted for most needs. Advanced users can use the VSL object-based shader system and control just about every shader attribute. Animation is easy for simple path translations, but takes some getting used to for first-timers. Overall, Realsoft 3D offers great tools with which to create stunning images and animations. If you spend some time learning this piece of software, you'll be rewarded with surprising results. ■

IMAGE © Tim Borgmann



04

REALSOFT 3D 5 OFFERS A GREAT ALTERNATIVE TO THE BETTER-KNOWN 3D PACKAGES THAT ARE CURRENTLY AVAILABLE

3D VERDICT	9
RANGE OF FEATURES	8
VALUE FOR MONEY	9

PROS Better workflow >> UV editing easier and more accessible >> Sub-D tools enhanced >>

CONS Character animation requires fine-tuning >> Interface could use fresher icons for toolsets

[03] An example of how Realsoft is used in the professional world: A street scene visualised for a Foster and Partners design, showing the architectural and retail aspects of a commercial design

[04] Abstract art creation using rendered NURBS curves with VSL shaders, created to define geometric surface properties

PFZed

Data down to the last pixel – is this what the industry's been waiting for?

BY MARTIN SOUTHWOOD

MAC & PC

PRICE

>> £200* (\$330)
*Currency conversion

MINIMUM SPEC

MAC

- >> OS X 10.3.3 or later
 - >> G4 1GHz
 - >> Shake 3.5
 - >> QuickTime 6.5 or later
- ##### PC
- >> Windows 2000/XP
 - >> Pentium II
 - >> Digital Fusion 4

FEATURE LIST

- >> Uses per-pixel Z-depth information
- >> Each node supplied with adjustable parameters
- >> Can display depth information either as a Grey map or within the Z channel
- >> Move node enables user to virtually move the camera position
- >> Allows output through via standard Z-depth formats

[01] Within *PFTrack*, footage is calibrated with the optical flow information shown here as an image overlay, indicating differing pixel depths

[02] This is from the original footage imported into *Shake* with the optical flow data generated by the parent application, *PFTrack*

[03] This is the same piece of footage displayed within *Shake*, where the pixel depths are displayed as a grey map, with white closest to the camera and black furthest away

[04] Z-blur is applied to the footage based on *PFZed*'s automatic z-depth calculations as seen in the grey map

DEVELOPER THE PIXEL FARM

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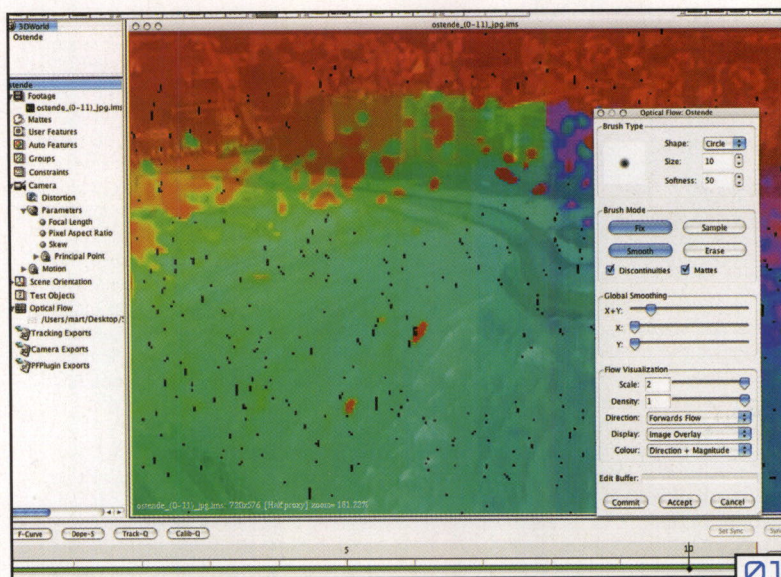
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Never tiring of envelopes to push, The Pixel Farm's objective of a "total data model of the image" takes another leap towards the metadata dream with the launch of *PFZed*. Provisionally available for Apple's *Shake* and Eyeon's *Digital Fusion* (and costing £200), this is a unique plug-in that automatically derives 3D information from a 2D image sequence. Or, as Bruce Willis might say: "Zed depth baby, Zed depth."

Earlier this year, The Pixel Farm announced the release of version 2 of its film tracking and data analysis toolset, *PFTrack*. This tracks individual pixels from one frame to the next; an innovative enhancement, enabling the creation of a complete data model of your footage. Such detailed data can then be re-purposed in many ways and exported to almost any 2D or 3D application with support from a range of export plug-ins, the latest of which is *PFZed*.

Designed as a compliment to *PFTrack*, *PFZed* utilises the track and Optical Flow data generated by *PFTrack* from footage shot with camera motion. It then automatically extracts pixel-depth values from such footage, and allows for this information to be fully exploited within the compositing environment of the host application. Therefore, in order to calculate depth data, your footage must firstly be calibrated within *PFTrack* and an Optical Flow run. *PFZed* then derives per-pixel depth information from the resulting data. This can be stored in the Z channel of your image stream or as a Grey map, and displayed accordingly. As useful as this is to time-conscious compositors and production supervisors for generating layers, manipulating 3D particle systems or depth-based optical effects, The Pixel Farm has also included a *PFZed* kit to further enhance the usefulness of the Z-depth data.

This comprises a suite of five nodes each of which comes with its own set of adjustable



parameters in the form of slider controls within the Parameters area of the interface. Each of the nodes (*PFZedAdjust*, *PFZedClip*, *PFZedComp* and *PFZedLayer*) provides a fast and efficient way to make full use of Z depth data. The fifth node (*PFZedMove*) stands out from the others as a minor miracle in its own right. Move allows the user to re-render a frame from a different camera position. Yes, you read that correctly! It's possible to adjust the camera position, orientation and focal length using this node.

This powerful little adjustment facility makes sufficiently involved use of the per-pixel depth data to consistently warp the image enough to affect a virtual move in camera position.

Overall, *PFZed* is further evidence that, in addition to performing all the standard image processing routines you'd expect, The Pixel Farm's products also seek to derive a

complete data description of the image (and how it moves), down to the last pixel. This is a welcome response to a real industry need; the unceasing convergence of 2D and 3D in film post-production lays emphasis on data about data. The Pixel Farm is aiming for this metadata model of the image – and so far, it's harvesting real benefits. ■

3D VERDICT	9
RANGE OF FEATURES	9
VALUE FOR MONEY	8

PROS Unique ability to generate 3D information on a per-pixel basis >> Versatile with complimentary toolset >> Time saving

CONS Only for two applications >> Only interprets data from own parent application



02



03



04

MetaForm 1.1

Add versatile organic modelling and animation to your Poser scenes

BY MAT BROOMFIELD

for Poser

DEVELOPER WEIRD JUICE (SOLD THROUGH DAZ 3D)

WEB WWW.DAZ3D.COM

CONTACT +1 800 267 5170

>> PC

Although it's a terrific program for animating human, animal and robotic figures, *Poser* is extremely limited when it comes to modelling. You can create and combine a few primitives, but most look to other programs for any kind of serious modelling. But now, thanks to *MetaForm*, the program gains a whole new set of sophisticated construction tools. Even better, it has organic modelling and animation, enabling you to create effects as diverse as liquid, force fields, fire, rain, snow, and far more besides.

MetaForm is a piece of optimised C code, which is launched via *Poser*'s Python interface. Although it will run in both *Poser 5* and *Poser 4 Pro Pack*, the latter version's animation is so unfriendly that we don't recommend it for that program, except for creating stills.

The program is essentially a very versatile metaform editor. Metaforms are a peculiar form of modelling primitives, which in addition to their shapes also have attraction or repulsion properties. When metaforms are placed in proximity to each other, those with attraction merge to create organic shapes, while those that have repulsion serve to erode other nearby objects.

In *MetaForm*, you're provided with a small range of primitive shapes, but a vast array of tools and parameters, which define the way that these shapes interact and move. You can also sculpt your objects using effects such as Field Noise and Field Waves. The latter is ideal for creating ripples on a pond, or raindrops in a puddle.

Another excellent feature in *Metaform* is the ability to add a field to any *Poser* figure or object. Fields are organic shells that surround the selected object. A field can have any standard *Poser* material properties applied to it, enabling it to be solid, so you can achieve



01

liquid metal effects, or semi-transparent, enabling the creation of forcefields, energy glows or volumetric atmospherics. The fields can even be multi-layered, so that you can build up composite effects.

ALIEN GOO

In addition to its sculpting tools, there are emitters which can produce streams of metaballs. These merge to form organic liquid surfaces, which are ideal when creating effects such as wine from a bottle, water from a hose or fountain: even a river.

With support for various types of collision detection, *MetaForm* provides the option to create some very sophisticated effects. Water bouncing off an object, or alien goo enveloping a figure are just two possibilities. The main limitation that prevents this option from being even more

useful is the amount of system resources required to process even relatively few metaballs. As few as 100 balls takes a few seconds to process, and the tens of thousands required to achieve (say) a convincing river or waterfall, would bring *Poser* to its knees in short order. As it was, when using *MetaForm*, we occasionally found ourselves looking at a blank screen for minutes at a time while some unknown

calculations occurred in the background.

While deflectors create collision effects, consumers produce the

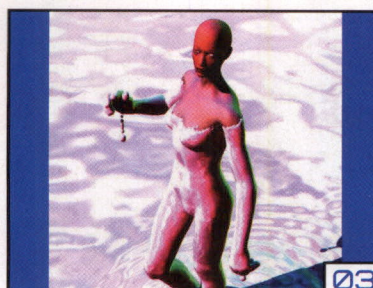
opposite effect, gobbling animated metaballs or particles without a trace – which is useful for simulating umbrellas, for example.

MetaForm adds a vast array of modelling and animation functions to *Poser*, and – at this price, especially – is undoubtedly the most significant add-on *Poser* tool ever. ■

IT'S UNDOUBTEDLY THE MOST SIGNIFICANT ADD ON POSER TOOL EVER



02



03

© Weird Juice Software

3D VERDICT	8
RANGE OF FEATURES	8
VALUE FOR MONEY	10

PROS Versatile >> Adds much-needed modelling and fluid animation to *Poser*

CONS Painful to animate in Pro Pack >> Quirky and unstable >> Processor/memory-intensive

PRICE

>> £36* (\$69.95)

*Currency conversion

MINIMUM SYSTEM

>> Any PC capable of running *Poser*, *Poser 4* with *Pro Pack* or *Poser 5*

MAIN FEATURES

- >> Metaball modelling
- >> Metaform modelling
- >> Create object fields
- >> Create organic animation and effects
- >> Add new modelling tools to *Poser*
- >> Works with *Poser 5*'s material room
- >> Incorporates particle animation
- >> Create and save new *Poser* props
- >> Create volumetric effects

[01] *MetaForm* was used both to model the fountain, and to create the animated water

[02] It might look like this wolf's had his Ready Brek but actually, he's just been given a personal force field courtesy of *MetaForm*'s Field option

[03] You can transform figures by adding a meta shell. You can also make terrains such as this one

REVIEW

Piranesi 4

Turn flat 3D renders into painted art, or drop in clipart to bring 3D work to life **BY CHRISTIAN DARKIN**

PC/MAC

PRICE

>> £450 (\$834)*

*Currency conversion

MINIMUM SYSTEM

PC

>> 300MHz Processor

>> Windows 98/2000/NT/

XP/XP Pro

>> 256MB RAM

MAC

>> 400 MHz PowerPC G4

>> Mac OS X v10.2.6

>> 256MB RAM

MAIN FEATURES

>> 2D painting onto
3D objects

>> Natural media tools

>> 2D cutout library

>> 3D object import

>> Selection of paint areas
using 3D criteria

>> Plug-ins for
3D packages

>> Standalone renderer for
generating images

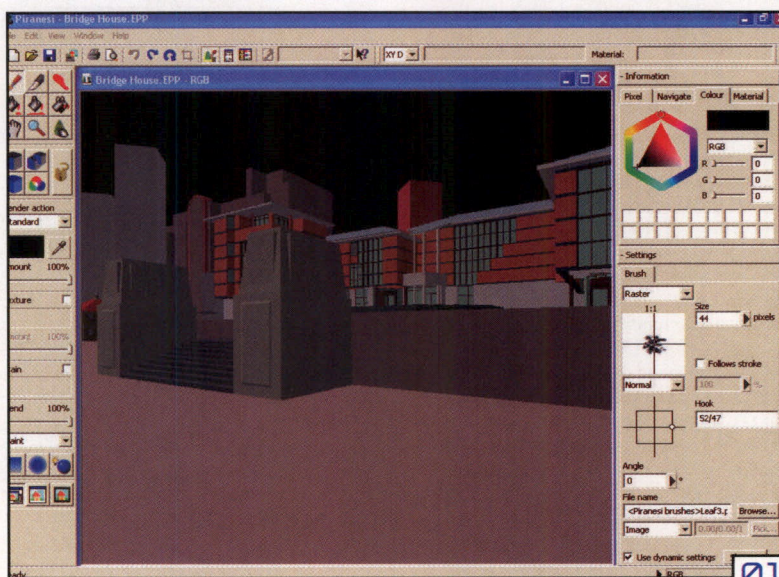
DEVELOPER INFORMATIX SOFTWARE INTERNATIONAL **WEB** WWW.INFORMATIX.CO.UK **CONTACT** INFO@INFORMATIX.CO.UK

The weird thing about *Piranesi* is that although it isn't a true 3D package, it's not a 2D painting program either. Instead, it falls somewhere between the two, and hopes to turn plain 3D scenes – particularly architectural ones – into hand-painted or richly textured pieces of artwork.

The program takes images rendered in a special format, and allows you to paint on only one face, material, or object at a time. You can paint with a range of natural media, or in lighting effects, or with clipart (like trees, furniture or people). Everything you add to the program is automatically skewed to the correct perspective and scale, so the further you place it from the camera, the smaller it appears on screen.

All this takes slightly longer than importing your render into *Photoshop* and applying a painterly filter, but the results are incomparable. With *Piranesi* you can produce images from your 3D models that look as though they've been daubed in watercolour, scribbled with a graphic pen, or rendered in chalk or oils. Because you're applying paint effects as hand-painted strokes (and because you're working on each object separately), the artwork looks subtly layered and organic – the clinically precise look of flat 3D rendering is almost completely overcome.

Obviously *Piranesi* can't detect the scale and perspective of a 2D bitmap; it needs files created in EPix format and provides not only plug-ins for the common 3D packages, but also a stand-alone EPix renderer to help you create source files. This does add another layer to the



pipeline, but it gives you a high degree of control. Version 4 introduces some natural media effects and paintbrushes, which offer instant lighting effects: also new is a Tool Manager window. This gathers together the functions of whatever aspect of your scene you're working on at the time and gives you access to clipart, paintbrushes, and materials all from one box. Regular users will certainly find it a real timesaver.

The big news for *Piranesi 4* is the huge expansion of its clipart library. There are now 300 more royalty free people, plants, cars and other objects that can be dropped

instantly into your scenes. The range is strong, but focused heavily on *Piranesi*'s core market – architectural visualisations. What's really useful here is that you can now load in 3ds max and DXF objects as clipart. Fully 3D objects can, for the first time, be brought straight into a 2D environment, while still retaining their 3D structure. You rotate and place them, then *Piranesi* scales them automatically to take account of the perspective in your image.

That you can now bring in any object you like as a clipart object means *Piranesi* has become a true 2D/3D hybrid, and it also frees the package from its limitations as a purely architectural tool. Any designer or artist working with 3D images should now be able to use this very useful program to produce authentic-looking painted artwork. ■

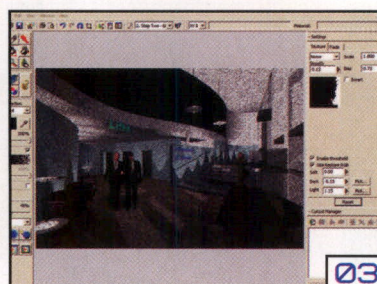
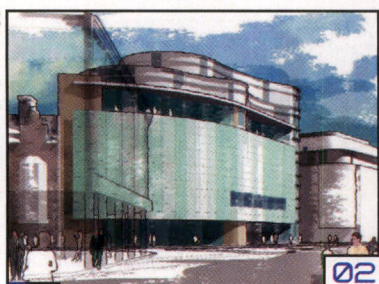
**YOU CAN NOW BRING IN
ANY OBJECT YOU LIKE
AS A CLIPART OBJECT:
PIRANESI HAS BECOME
A TRUE 2D/3D HYBRID**

[01] On the surface, *Piranesi* looks just like a 2D paint package

[02] The natural media tools along with the clipart allow you to populate and paint your scene very effectively

[03] Effects can be applied over the whole image or to individual materials, faces or colours

IMAGE © Scott Brownrigg



3D VERDICT	8
RANGE OF FEATURES	8
VALUE FOR MONEY	8

PROS Great looking images >> Wide range of natural effects >> Good set of clipart in both 2D and 3D

CONS Clipart mainly architectural >> Set camera view >> Works best with flat surfaces

Motion

This real-time motion graphics package demands the most from your system **BY CHRIS KENWORTHY**

DEVELOPER APPLE

WEB WWW.APPLE.COM

CONTACT +44 800 039 1010

» MAC

Apple's *Motion* is a motion graphics application for compositing footage, drawing masks, applying filters, creating titles and outputting broadcast quality effects. The strong similarity to *After Effects* makes it tempting to compare them, even though the disparity in price suggests that they shouldn't be seen as a like-for-like swap. *Motion* does, however, feel like a slick, modern version of *After Effects* and, although this means that *Motion* is incredible value for money, it's easy to feel a little disappointed if you are comparing – it doesn't have true 3D layers, motion tracking or Expressions. But it's unfair to make the comparison, no matter how tempting, because *Motion*'s capabilities are impressive nonetheless.

Mask-drawing tools feel more responsive and easier to control than those found in *After Effects*. *Motion* comes with a variety of particle emitters, and even the ability to create your own particles with a single click – animating a storm of swirling logos can be achieved in less than a minute.

Better still, *Motion* is strong on real-time interactivity. Rather than making an adjustment and then creating a RAM preview, you can make adjustments to your clips as they play. They're made via Dashboards – translucent layers that float over the interface that are visually intuitive and responsive. Such adjustments update in real-time as the clip loops, and this makes working with *Motion* a great experience.

Motion also comes with 200 preset Behaviours, which are animations that can be applied to your work. You can apply a Spiral Behaviour to text, for example, to make it

APPLE'S MOTION FEELS LIKE A SLICK, MODERN VERSION OF AFTER EFFECTS

spiral into shot. The presets include 'natural' motions such as gravity and wind, but if you want to change them, adjustments are easy.

The filter effects are fairly standard, with a reasonable number of blurs, glows and manipulations which all work in real time. *Final Cut Pro (FCP)* users can launch

Motion directly from the timeline, do their work, and send everything back to *FCP* without having to think about export settings – this is a real time-saver.

SLOW MOTION

The main problem with *Motion* is an annoying lag in the main interface. When you try to expand the Layer pallet, it's a slow, stuttering process. When accessing libraries of filters, browsing for files, or resizing windows there

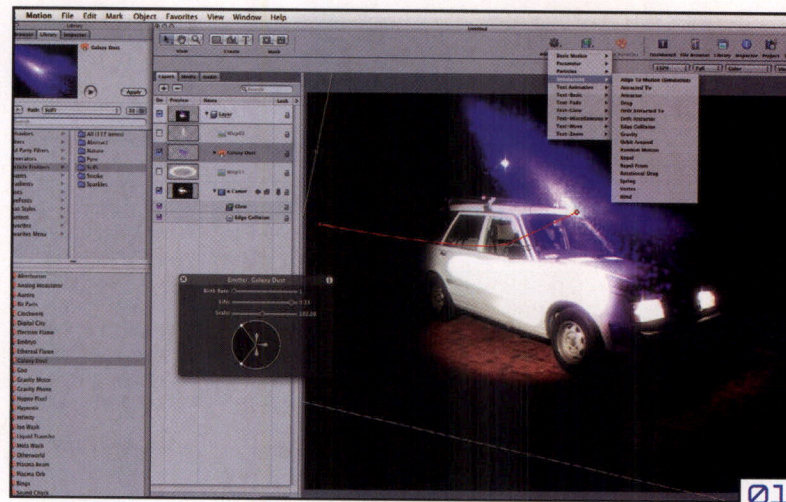
are delays. Even when running on a dual 2.5GHz G5, this sluggishness occurs frequently and becomes frustrating. In a production environment, the moment you make a decision you want to apply it, but with *Motion* you often have to wait for the application to catch up. This is a far from minor complaint, and is something Apple needs to address before *Motion*'s next release. Real-time interactivity also suffers on anything but the best machines – those that run the most expensive graphics cards.

That being the case, you wonder at whom *Motion* is aimed. If you can afford a high-end system, you might prefer to pay a bit more for software that's a genuine alternative to *After Effects*. The overall look and feel of *Motion* is superb, and the rich featureset makes it a good addition to any software library. For beginners, it's a great program on which to learn. ■

3D VERDICT	8
RANGE OF FEATURES	7
VALUE FOR MONEY	9

PROS Stunning value for motion graphics and effects » Easy-to-use masking tools
» Laborious tasks made incredibly simple

CONS Annoying lag in the main interface
» Demands the very best system available
» Layer window is non-intuitive



01

PRICE

» £199 (\$299)

MINIMUM SYSTEM

» Mac OS 10.3.5
» 867MHz processor
» 512MB RAM
» Graphics card such as ATI Radeon 9800 XT or Nvidia GeForce FX 5200 Ultra

MAIN FEATURES

» Real-time interactivity with motion graphics
» Unlimited layers of text, graphics and video
» 200 Behaviour-based animations that work without keyframing
» Letter-by-letter animations
» Preset particles, and particle system
» Over 100 fast, interactive filter effects
» Fully editable templates



02



03

[01] In *Motion*, it takes just moments to add particles and glow filters and animate your layers in real time. Time-intensive tasks can be completed in seconds, without requiring keyframes

[02] Drawing and animating masks is easy. Here, one glowing cloud was placed behind the car, and another inside, in a matter of moments

[03] By combining Behaviours, 3D simulation filters and multiple layers, it's easy to create an impression of 3D layering, and a graphics-heavy look

REVIEW

HDRI-Studio

Real photo studio lighting for photoreal product renders

BY STEVE JARRATT

>> PC/MAC

PRICE

>> From \$15 (£8*) to \$95 (£51*), depending on image and resolution

*Currency conversion

MINIMUM SYSTEM

>> Any 3D renderer capable of utilising HDRI in spherical HDR format

MAIN FEATURES

>> Individual HDR images in spherical Radiance format
>> Resolutions from 750x375 up to 6000x3000
>> Taken from professional studio lighting set-ups
>> 20 Neutrals, 10 Gels and 8 Abstracts

DEVELOPER HDRI-STUDIO

WEB WWW.HDRISTUDIO.COM

CONTACT WWW.HDRISTUDIO.COM/CONTACT.HTML

There are already HDRI collections available from the likes of Dosch Design or Industry Graphics, which offer dozens of images in various formats (light probe, spherical map, vertical/horizontal cross), bundled onto CD for a reasonable fee. However, there are several problems with these: many images are either shot outdoors or in informal

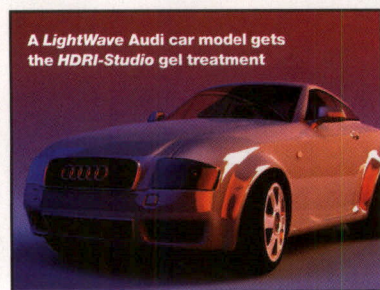
settings, which can have an unwanted colour cast or produce inappropriate reflections. Also, the interior 'studio' shots are usually synthetic images created on computer with semi-random backdrops, and, of course, you often end up paying for many images that you're never going to use.

HDRI-Studio attempts to overcome each of these problems in turn. All of the images have been created from a professional product-photography setup where each stage has balanced lighting with accurate highlights and fills. The reflections are just as you'd see in a real product shot (though errant cables and brickwork have been removed), and all of the images are available for individual order in a variety of resolutions so you know they'll be suitable for the job at hand.

On first contact with 3D World, HDRI-Studio's prices erred on the expensive side, with even the low-res versions weighing in at around £40. Fortunately, our criticisms have been taken on board and now they start

at just £15, or less for the low-res starter packs, and the end results speak volumes. Where most HDRIs create muted, drab-looking scenes, HDRI-Studio generates lovely bright highlights and strong areas of shadow. In addition, by rotating the image and attenuating the brightness, you can create a multitude of moods and styles.

For high-quality product renders, HDRI-Studio is a bit of a no-brainer. ■



A LightWave Audi car model gets the HDRI-Studio gel treatment

3D VERDICT	8
RANGE OF FEATURES	n/a
VALUE FOR MONEY	7

PROS Great-quality HDR images >> Simple to purchase and download >> Good online previews >> Multiple resolutions

CONS Most of the affordable images are very low-res >> Only available as spherical maps

3D Fluff training for Cinema 4D

High-res video training for tutorial-starved Cinema 4D R9 users

BY STEVE JARRATT

>> FOR CINEMA 4D

PRICE

>> £49 (\$95*)

*Currency conversion

MINIMUM SYSTEM

>> Mac/PC with DVD drive; QuickTime 5 or higher
>> Tutorial content designed for Cinema 4D R9, with Advanced Renderer and Sketch & Toon Modules

MAIN FEATURES

>> Over four hours of Cinema 4D R9 training
>> Lossless 1024x768 resolution screen capture with voice-over
>> Includes all tutorial project files, including several HDR images
>> Covers varied topics

DEVELOPER 3D FLUFF

WEB HTTP://DVD.3DFLUFF.COM

CONTACT +44 (0)1727 766465

This first volume of 3D Fluff's DVD training, *Design & Visualisation*, has a grander-sounding title than it perhaps deserves. Over the course of four hours, the Fluff tutors – Janine Pauke and Matthew O'Neil – talk you through two major projects: the creation and rendering of a realistic glass vase, and then the construction of a more complicated motorbike wheel

assembly. The latter takes up the lion's share of the disc because it includes both construction and animation using Cinema 4D's *Expresso* system.

The quality of the video playback is exceptional and it runs at a huge resolution so you never get confused by a blurred value or distorted icon. Likewise, the audio quality is great. The content of this disc is generally of a high standard, although it's surprising how quickly four hours can go.

For some users, the pace may also err on the pedestrian, given that you can pause and replay at any given point. However, during the course of the two projects, a lot of ground is covered, and it's almost certain that you'll pick up at least a few useful tips along the way, and a lot more if you're a beginner.

A complete motorbike front wheel assembly, complete with motion blurred movement and Expresso-ed spring action, courtesy of 3D Fluff's training DVD



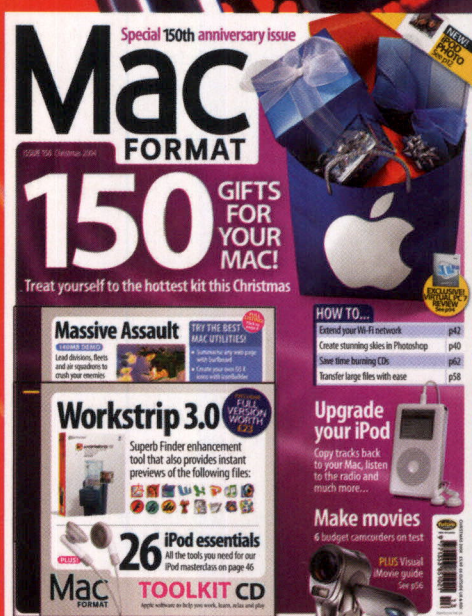
Our only problem is with the pricing. Given that DVDs such as this are pretty much of the 'watch once' (or maybe twice) variety, plus the increasing amount of material available for free on the net, this one-disc DVD set does seem quite expensive.

Overall, though, this is a competent start for 3DFluff, and we await the next volume – *Interior Lighting & Rendering* – with interest. ■

3D VERDICT	7
RANGE OF FEATURES	n/a
VALUE FOR MONEY	6

PROS Very high quality audio and video >> Covers a lot of basic Cinema 4D topics >> Includes several HDR images

CONS Only two distinct projects >> Twice as expensive as a 500-page guide book >> Can be rather pedestrian in places



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Whether you're looking for a modeller, a lighting specialist or a character animator, placing an ad in 3D World's classified section is the best way to advertise the job to over 20,000 people

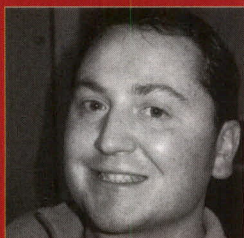
PEOPLE MOVES

BRIAN ADLER has joined Santa Monica-based Steele, Inc., as Executive Producer. His role at the post-production, design and visual effects studio will involve bidding, production, client liaison, and acting as Visual Effects Supervisor on various special projects.
www.steelevfx.com

JOSH KING has joined the expanding Production team at Rushes as a full-time Producer. Josh has produced work for JWT, Mercury Records, Colonel Blimp, WCRS and Saatchi, among others. The company has also recruited **DANNY JONES** as Senior Producer. As well as fulfilling his day-to-day responsibilities as Senior Producer, Danny's role will involve helping clients understand the full range of options available to them across the company's HD, SD, *inferno*, *flame*, *fire*, *2K Spirit* and *C-Reality* suites.
www.rushes.co.uk

Ex-ESC Entertainment staff members **DAN ROSEN**, **MATT MCDONALD** and **JOHN JACK** have opened a new VFX house in San Francisco, called Evil Eye Pictures. Evil Eye will focus on design and compositing, shot design, titles, motion graphics, and a range of other related services: the founders have over three decades of combined experience in film and broadcast. Their credits include *The Matrix* trilogy, *Catwoman*, *The Big Lebowski* and *What Dreams May Come*. Visit the site below to find out more.
www.evileyepictures.com

HOW DID YOU GET YOUR JOB?



JONNY GREW

JOB TITLE: 3D Animator

AGE: 26

COMPANY: The Hive at VTR

URL: www.hiveuk.com

TEN-WORD SYNOPSIS OF WHAT THE JOB INVOLVES...

It involves modelling, texturing and lighting – but mainly animating (preferably characters!).

WHAT DOES A TYPICAL DAY ENTAIL?

Typical day? Depends on the job at hand. Generally sat in front of my computer screen trying to understand why the shot I'm working on doesn't look as good as it did when I left it at 11.30pm the night before. Mainly animating characters – sometimes to an audio track – lip sync etc. Occasionally modelling, setting up scenes, re-booting the renderfarm following a crash.

WHAT DID YOU DO TO GET YOUR CURRENT JOB?

After four months of job hunting and kicks in the balls following my graduation, I lowered my expectations and started as a runner. I stayed behind building on my 3D knowledge after running tapes around and making tea for clients.

WHAT QUALIFICATIONS AND EXPERIENCE DO YOU HAVE?

I got a BA in Multimedia Design from... <ahem>... De Montfort Uni. It's not where you've been, it's where you're going!

WHAT ARE THE PERKS OF THE JOB?

I get a kick out of seeing stuff I've worked on broadcast. Oh, and I particularly enjoy wrap parties.

HOW MANY HOURS DO YOU HAVE TO WORK A WEEK?

45 hours – but if the project requires it, I'll work evenings and weekends too.

WHAT ONE PIECE OF ADVICE WOULD YOU GIVE TO A YOUNG 3D ARTIST HOPING TO BREAK INTO THE INDUSTRY?

Work stupid hours, be very self critical and try to specialise in one area. It's better to be master of one trade than jack of all...

WHERE DO YOU HOPE TO BE IN FIVE YEARS' TIME?

I'd love to work on a short film and maybe a movie, but am keen to remain true to a stylised rather than photoreal finish.

COMPANY NEWS

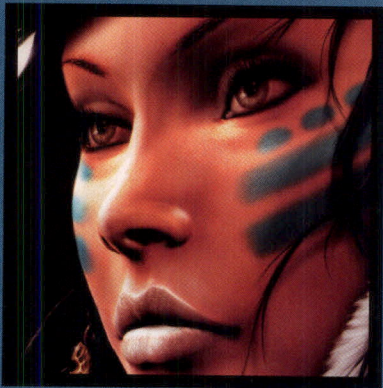
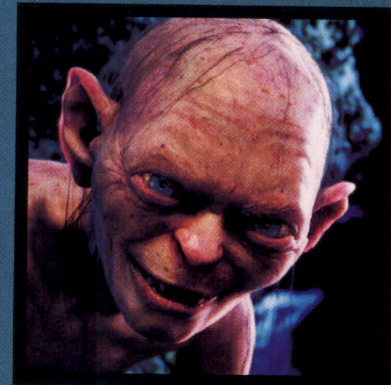
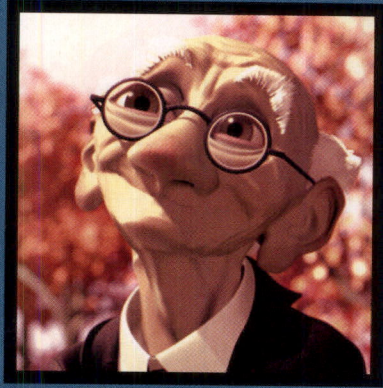
EOVIA is now the exclusive representative for DAZ Productions in Europe. *DAZiBryce*, *DAZiMimic* and *DAZiStudio* are immediately available from the website below. "We're extremely proud and enthusiastic to become the privileged partners of DAZ Productions. It will reinforce Eovia's leadership in delivering accessible and powerful 3D solutions to professional artists and serious amateur animators," said Philippe Richard, CEO of Eovia.
www.eovia.com

RED STAR STUDIO is a new company producing high-end digital effects and animation aimed at independent film and TV. Run by award-winning *3D World* contributor Benjamin Smith and Jan Rogowski, the Sheffield-based company offers a range of filmmaking services. Take a look at the website below for more information.
www.redstarstudio.co.uk

Award-winning VFX company **E=MC2 DIGITAL** has launched a sister animation/VFX studio, Double Edge Digital, in Glendale, California. Double Edge Digital are also overseeing the formation of a digital production infrastructure in Taipei to increase the efficiency of the Californian operation.
www.emc2visfx.com

BOURNEMOUTH UNIVERSITY is the latest customer to buy and implement *endorphin*, NaturalMotion's dynamic motion synthesis software.
www.naturalmotion.com

OVER 20,000 ARTISTS AND ANIMATORS WILL READ THIS ISSUE OF 3D WORLD. YOUR NEXT EMPLOYEE COULD BE ONE OF THEM



An advert in *3D World* is the best way to recruit new talent for your organisation. Each issue of the magazine is read by over 20,000 3D artists and animators* around the world, from the hottest new graduates to professionals at the leading animation, games and post-production studios. Whether you're looking for a modeller, a character animator, a technical director or a lighting expert, you'll find your ideal candidate through an advert in *3D World*. Call our ad sales team today!

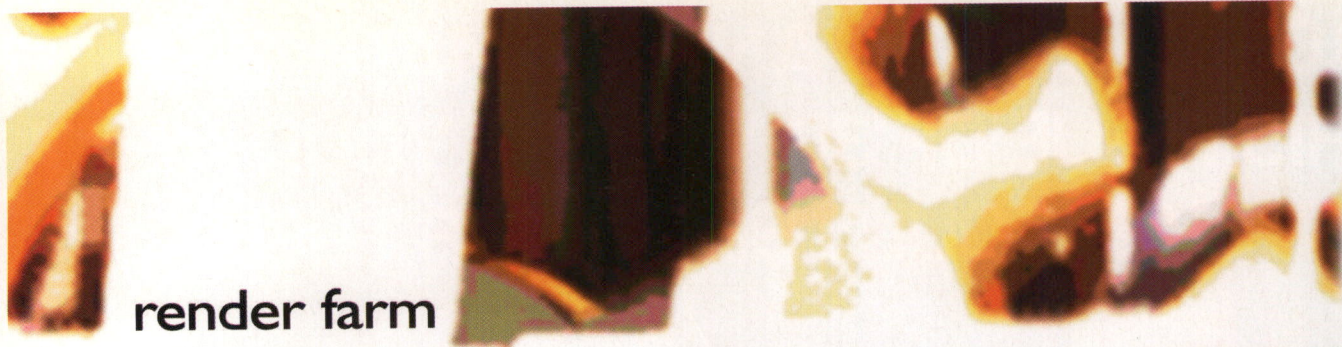
*Source: 3D World readership survey, Jan 2004. Audited monthly circulation: 12,978 copies



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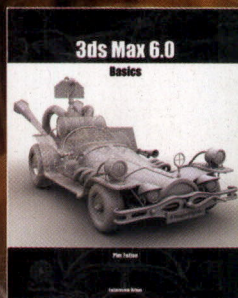
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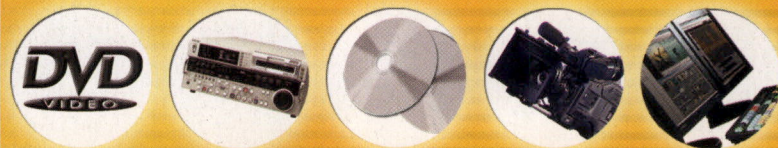
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EXHIBITION

EXHIBIT YOUR CREATIONS

If you're an up-and-coming 3D artist, our Exhibition section is the place to showcase your work. Each issue, we display the best illustrations and animation stills that have been produced outside of the major design houses.

Please note that contributions must be submitted on the basis of a non-exclusive worldwide licence to publish, both in printed and electronic form, by *3D World*.

We also regret that we cannot reply to every letter or email we receive in person. Selecting and assembling the images does take time, so if your work has not yet been published, please be patient.

SUBMISSION GUIDELINES

- >> Ideally, images should be rendered out at least 3,000 pixels wide or high.
- >> Images under 500 pixels in size will *not* be used in the magazine.
- >> Nor can we print smaller images that have been resized in *Photoshop*.
- >> Always include a text (.txt) file with your images containing the following things:
 - Your name
 - Your email address
 - The URL of your website
 - The title of each image
 - How the image was created
 - The software you used to create it
 - A little bit about yourself
- >> Don't feel obliged to write pages: around 200-300 words of text will do.
- >> Don't rely on a separate covering letter: we have a tendency to lose those!
- >> Files under 3MB in size can be emailed to 3dw.exhibition@futurenet.co.uk
- >> Larger files may be sent on CD or Zip disk to: Exhibition, *3D World*, 30 Monmouth Street, Bath, BA1 2BW, UK
- >> We can't return your CDs/disks, so please don't send us your originals!

SHOWREELS

Send your showreel or short animation to the address above, and you could see it on a future *3D World* cover CD. All reels must be submitted in QuickTime, MPEG, AVI or DivX format on CD, DVD, or Zip disk. No material with a copyright soundtrack can be included. Try to keep files under 30MB.



#093

**01 LOÏC 'E338' ZIMMERMANN****a** KUEOTSA, TIMES OF WAR**b** KUEOTSA CLOSE PORTRAIT**c** ASSASSIN KICKS**d** DAREDEVIL STANDING**USING:** *Maya, Photoshop*

"My name is Loïc Zimmermann, aka E338. I'm French, and I'm a 30-year-old freelance CG artist. I've been working in the industry for five years, prior to which I was an instructor (I also recently gave classes for Alias).

I enjoy working on animations, and character design is one of my favourite parts of the job, along with post effects. I also make high-res illustrations, based on CG, to test things, experiment, perfect my skills and have a lot of fun (also in order to make a book or a comic one day).

In the 3D industry, I'm a fan of Jason Schleiffer, and of course, Bay Raïtt. I'm not really involved (or stuck) in realistic renderings. I prefer the organic aspect of things, the frontier between CG and classical art; at least, that's what I intend to reach in my personal works."

[e]: info@e338.com

EXHIBITION

01 ARK VFX
JENNY

USING: *LightWave, Photoshop*

"Ark is now just over a year old. We're a group of artists with a broad spectrum of skills ranging from traditional 2D artwork, concept design, 3D modelling and animation, matte painting and directing.

The image wasn't intended to portray the idea of the perfect woman, rather an interesting and striking face: and we wanted to try and make it as real as possible.

Creating the hair was the most difficult aspect, and some time was spent trying different methods. In the end, we decided to paint most of it as the image was intended as a still from the outset. We hope to continue working on things that excite us."

[e]: contact@arkvfx.net
[w]: www.arkvfx.net



#095



02 XAVIER MARQUIS
THE NURSE

USING: 3ds max, ZBrush, Photoshop

3D World regular Xavier currently works for a video game company, Guerrilla Games, as a Concept/Marketing Artist, and continues to create stunning 3D artwork in his spare time.

[e]: contact@xavier-marquis.com
[w]: www.xavier-marquis.com

EXHIBITION

01 MICHEL AGULLO WINTER GAMES

USING: *Amapi 6.1, Carrara 3*

"I made this image a week ago: it's called *Winter Games*. I created it using my favourite 3D software – *Amapi 6.1* and *Carrara 3*. The theme is 'happy christmas sports'."

[e]: miagullo@yahoo.fr



02 THIERRY CANON KONGZI IN THE KITCHEN

USING: *3dsmax 5.1, V-Ray, After Effects*

"My name is Thierry Canon, and my pseudonym is Dareoner. I'm Lead Artist in the 3D Department of Specimen Post-Production, working on films, commercial spots and music videos. My universe is very influenced by matte painting and photography, and I study a lot of cinematic lighting."

I've directed my first short film, and I'll soon be doing my second one in full 3D."

[e]: thierrydare@9online.fr

[w]: www.sp6men.com



#097

03 SIMON SMALL
SACK MANUSING: *LightWave & Photoshop.*

"Getting personality into a character is a funny thing. I could spend countless painstaking hours working on detailed, lifelike models, and still end up with a character that lacks any kind of memorable personality. So why is it that when I spend just a few hours modelling with simple shapes and basic texturing, I can create a character with bags of personality?"

[e]: si@smallanimations.co.uk[w]: www.smallanimations.co.uk

03

next month

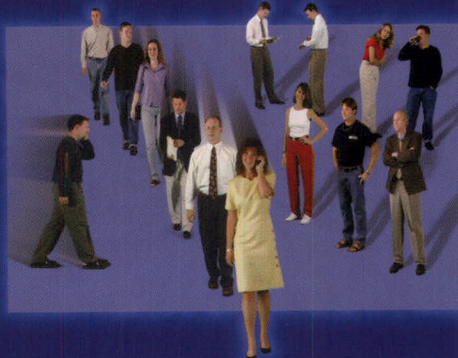
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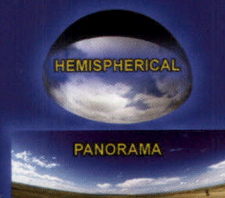
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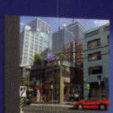
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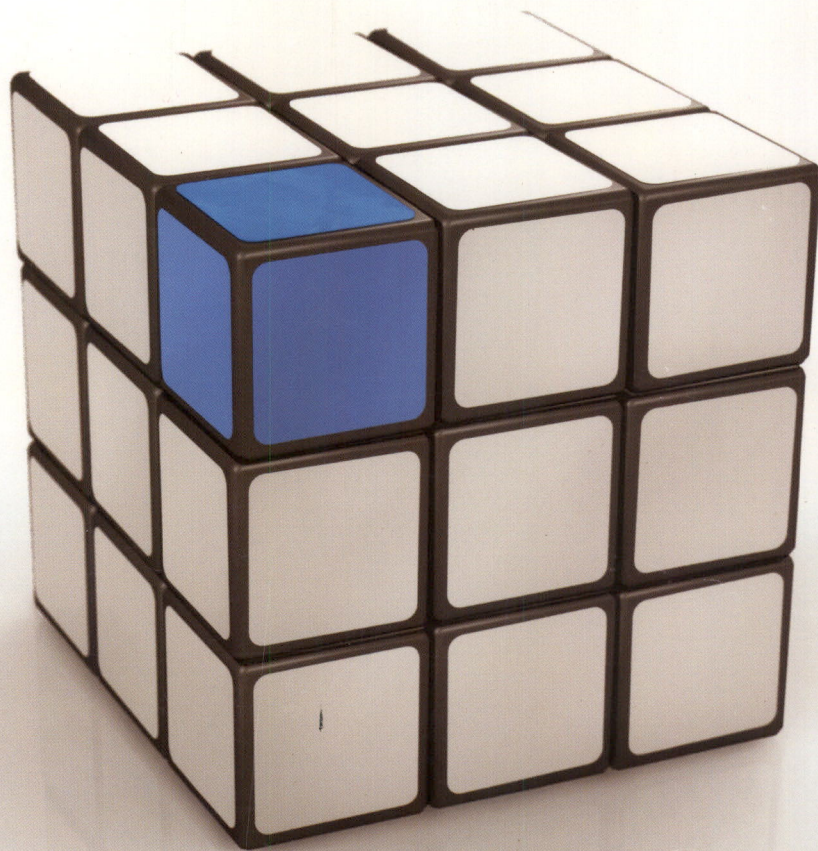


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